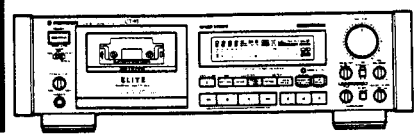
PIONEER®
The Art of Entertainment

Service Manual



ORDER NO.
ARP2227

STEREO CASSETTE DECK

CT-S709
CT-676
CT-676-S

CT–S709, CT–676 AND CT–676–S HAVE THE FOLLOWING:

Type	Model			Power Requirement	Remarks
	CT–S709	CT–676	CT–676–S		
KU/CA	○	–	–	AC120V only	
HEM	–	○	–	AC220V–230V, 230V–240V (switchable) *	
HB	–	○	–	AC220V–230V, 230V–240V (switchable) *	
SD	–	○	–	AC110V, 120V–127V, 220V, 240V (switchable)	
HEWM	–	–	○	AC220V–230V (switchable) *	

* Change the primary wiring of the power transformer.

- **This manual is applicable to the CT–S709/KU/CA, CT–676/HEM, HB, SD and CT–676–S/HEWM types.**
- **As to the CT–676/HEM, HB, SD and CT–676–S/HEWM types, refer to page 43–44.**
- **Ce manuel pour le service comprend les explications de réglage en français.**
- **Este manual de servicio trata del método ajuste escrito en español.**

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SI APR. 1991 Printed in Japan

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This service manual is intended for qualified service technicians; it is not meant for the casual do-it-yourselfer. Qualified technicians have the necessary test equipment and tools, and have been trained to properly and safely repair complex products such as those covered by this manual.
Improperly performed repairs can adversely affect the safety and reliability of the product and may void the warranty. If you are not qualified to perform the repair of this product properly and safely, you should not risk trying to do so and refer the repair to a qualified service technician.

WARNING
Lead in solder used in this product is listed by the California Health and Welfare agency as a known reproductive toxicant which may cause birth defects or other reproductive harm (California Health & Safety Code, Section 25249.5).
When servicing or handling circuit boards and other components which contain lead in solder, avoid unprotected skin contact with the solder. Also, when soldering do not inhale any smoke or fumes produced.

1. SAFETY INFORMATION

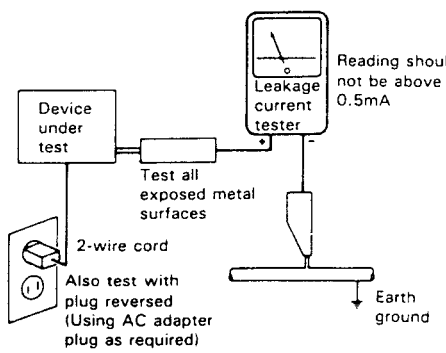
(FOR USA MODEL ONLY)

1. SAFETY PRECAUTIONS

The following check should be performed for the continued protection of the customer and service technician.

LEAKAGE CURRENT CHECK

Measure leakage current to a known earth ground (water pipe, conduit, etc.) by connecting a leakage current tester such as Simpson Model 229-2 or equivalent between the earth ground and all exposed metal parts of the appliance (input/output terminals, screwheads, metal overlays, control shaft, etc.). Plug the AC line cord of the appliance directly into a 120V AC 60Hz outlet and turn the AC power switch on. Any current measured must not exceed 0.5mA.


Leakage current tester
Reading should not be above 0.5mA
Device under test
Test all exposed metal surfaces
2-wire cord
Also test with plug reversed (Using AC adapter plug as required)
Earth ground

AC Leakage Test

ANY MEASUREMENTS NOT WITHIN THE LIMITS OUTLINED ABOVE ARE INDICATIVE OF A POTENTIAL SHOCK HAZARD AND MUST BE CORRECTED BEFORE RETURNING THE APPLIANCE TO THE CUSTOMER.

2. PRODUCT SAFETY NOTICE

Many electrical and mechanical parts in the appliance have special safety related characteristics. These are often not evident from visual inspection nor the protection afforded by them necessarily can be obtained by using replacement components rated for voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in this Service Manual.

Electrical components having such features are identified by marking with a ⚠ on the schematics and on the parts list in this Service Manual.
The use of a substitute replacement component which dose not have the same safety characteristics as the PIONEER recommended replacement one, shown in the parts list in this Service Manual, may create shock, fire, or other hazards.

Product Safety is continuously under review and new instructions are issued from time to time. For the latest information, always consult the current PIONEER Service Manual. A subscription to, or additional copies of, PIONEER Service Manual may be obtained at a nominal charge from PIONEER.

2. DISASSEMBLY

1. Remove the bonnet.
2. Remove the three screws ① and take out the FL shield plate. (Fig. 2–1)
3. Remove the upper screw ② and lower three screws ②, then take out the front panel. (Fig. 2–1)
4. Turn the power ON. (Fig. 2–1)
5. Open the cassette door by pressing the open/close button. (Fig. 2–1)
6. Remove the cassette cover and cassette door by pressing the two claws. (Fig. 2–1)

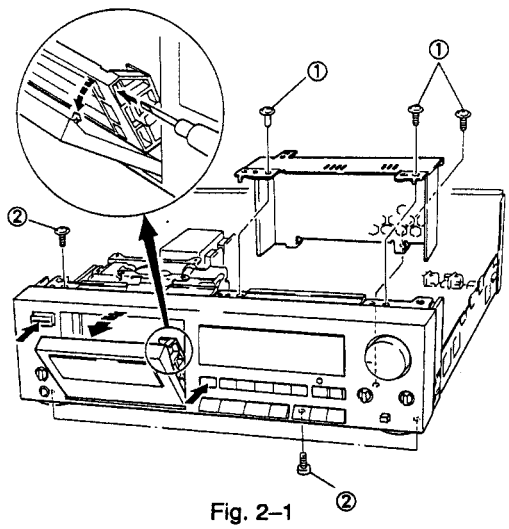


Fig. 2–1

7. Close the cassette door by pressing the close button.
8. Remove the springs at both sides of the cassette cover. Do not touch the end of spring to the cassette mechanism.
9. Remove the hook of the panel stay and take out the cassette door. (Fig. 2–2)
10. Remove the four screws ③ of the panel stay and two screws ④ on the chassis side, then take out the cassette mechanism unit. (Fig. 2–2)

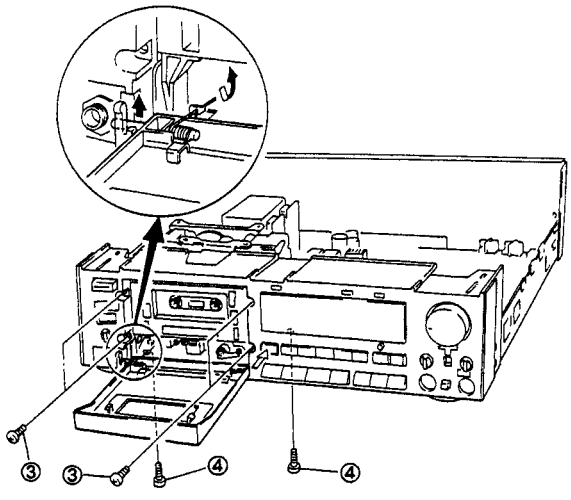


Fig. 2–2

● Removal of door

Pull and remove the door by pushing the claw indicated by the arrow in the figure.
(The claw forms hook shape as in SEC A to A. Do not touch the claw to other parts when pushing.)
The claw is symmetrical in configuration.

● Mounting of door

Open the door and strongly nip the claw and pocket so that the claw is hooked on the pocket.

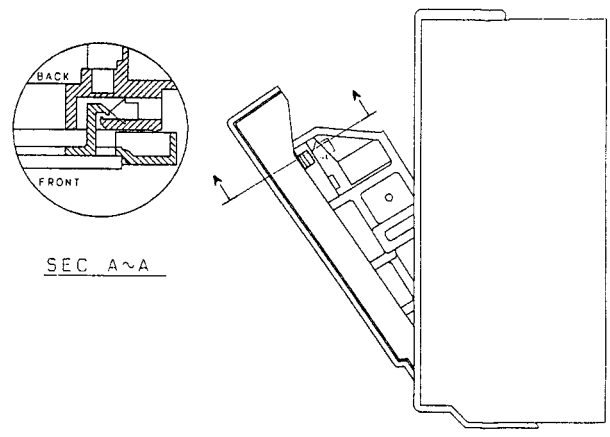


Fig. 2–3

3. EXPLODED VIEWS, PACKING AND PARTS LIST

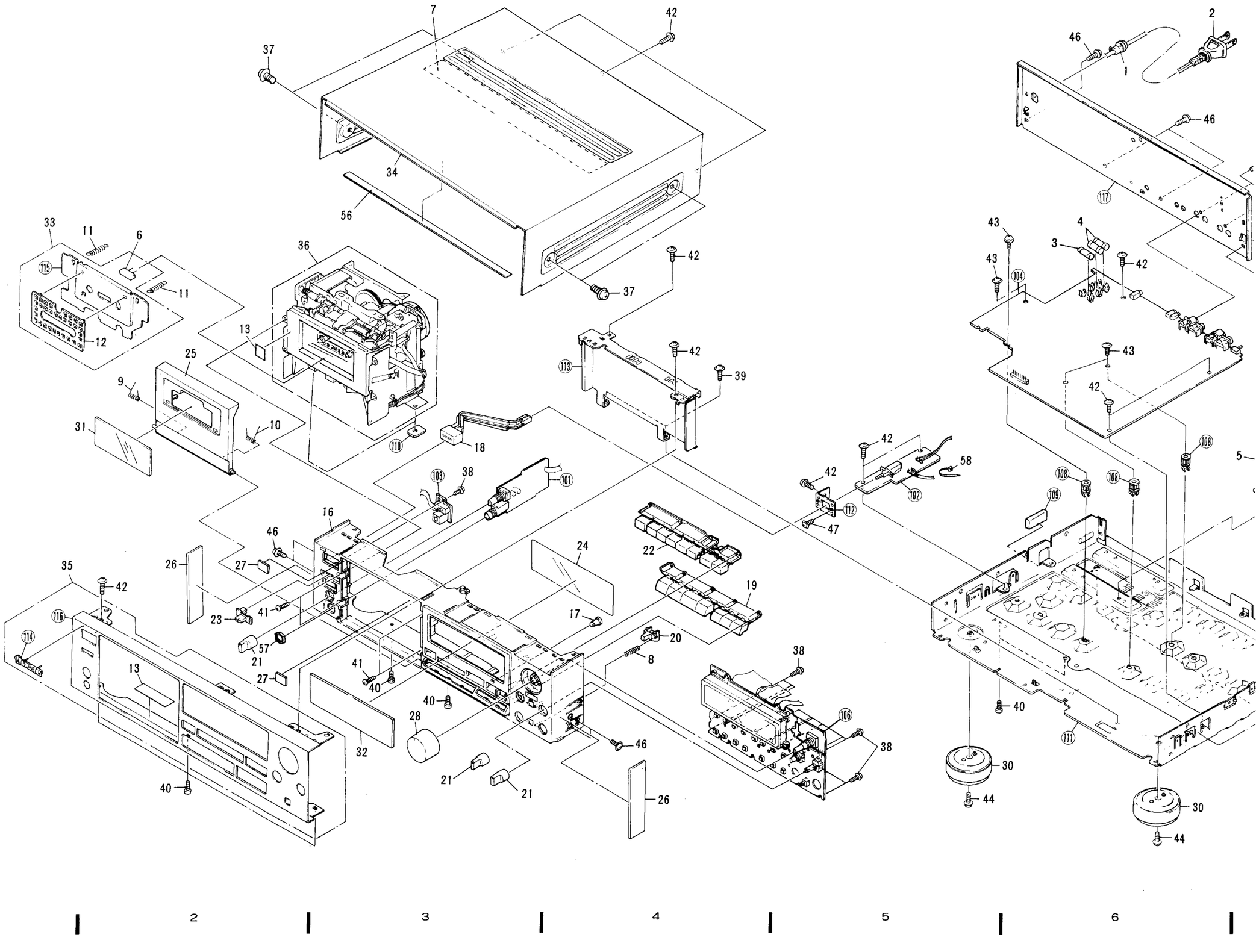
NOTES:

- Parts without part number cannot be supplied.
- The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- Parts marked by "⊙" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.

3.1 PARTS LIST OF EXTERIOR AND PACKING

Mark	No.	Description	Part No.
⚠	1	Strain relief	CM – 22C
⚠	2	AC Power cord	PDG1015
⚠	3	FU703 Fuse (1.6A)	REK – 074
⚠	4	FU701, FU702 (500mA)	REK – 077
⚠	5	T1 Power transformer	RTT1159
	6	Diode	SLF – 401C
	7	Absorb plate (B)	PNB1109
	8	Door spring	RBH1144
	9	Door spring (L)	RBH1259
	10	Door spring (R)	RBH1260
	11	Earth spring	RBL – 059
	12	Stablizer (B)	REB1038
	13	Door cushion	REB1167
	14	Spacer	REC1086
	15	Cord clamper	RNH – 184
	16	Panel stay	RNT1090
	17	Counter reset knob	RAA1009
	18	Power button	RAC1410
	19	Function knob	RAC1411
	20	Push knob	RAC1413
	21	Knob (B)	RAC1414
	22	Mode knob	RAC1552
	23	Slide SW knob	RAC1562
	24	FL filter	RAH1838
	25	Door	RAH1846
	26	Side rubber	REB1094
	27	Door sheet	REB1170
	28	VR knob assembly	RXA1281
	29	Stopper	VEC1061
	30	Insulator	VNK1095
	31	Door lens	RLP1026
	32	FL lens	RLP1027
	33	Cassette plate assembly	RXX1115
	34	Bonnet	RXX1378
	35	Front panel assembly	RXX1388
⊙	36	Mechanism unit	RYM1124
	37	Screw	FBT40P080FZK
	38	Screw	ABZ26P080FZK
	39	Screw	BBT30P060FCC
	40	Screw	BBT30P100FZK
	41	Screw	BBZ30P100FZK
	42	Screw	IBZ30P060FCC
	43	Screw	IBZ30P100FCC
	44	Screw	IBZ30P080FCC
	45	Screw	BBZ30P100FCC
	46	Screw	BBZ30P060FZK
	47	Screw	PMA30P060FCU
	48	Pad (F)	RHA1021
	49	Pad (R)	RHA1022
	50	Packing case	RHG1282
	51	Sheet	RHX – 034
	52	Control cord	RDE1030
	53	Connection cord (with mini plug)	PDE – 319
	54	Connection cord	RDE1002
	55	Operating instructions	RRB1094
	56	Protector	RED1020
	57	Jack nut	RBN – 006
	58	Binder	REC – 371
	101	HPHN unit	
	102	PWSW unit	
	103	TIMS unit	
	104	MAIN unit	
	105	TRN 2 unit	
	106	SUBB unit	
	107	Connector assembly (2P)	
	108	PCB spacer	
	109	Rubber spacer (A)	
	110	Mechanism sheet (2)	
	111	Main chassis	
	112	PS holder	
	113	FL shield plate	
	114	Name plate	
	115	Cassette plate	
	116	Front panel	
	117	Rear panel	
	118	Connection cord assembly	
	119	TRN 1 unit	

Exterior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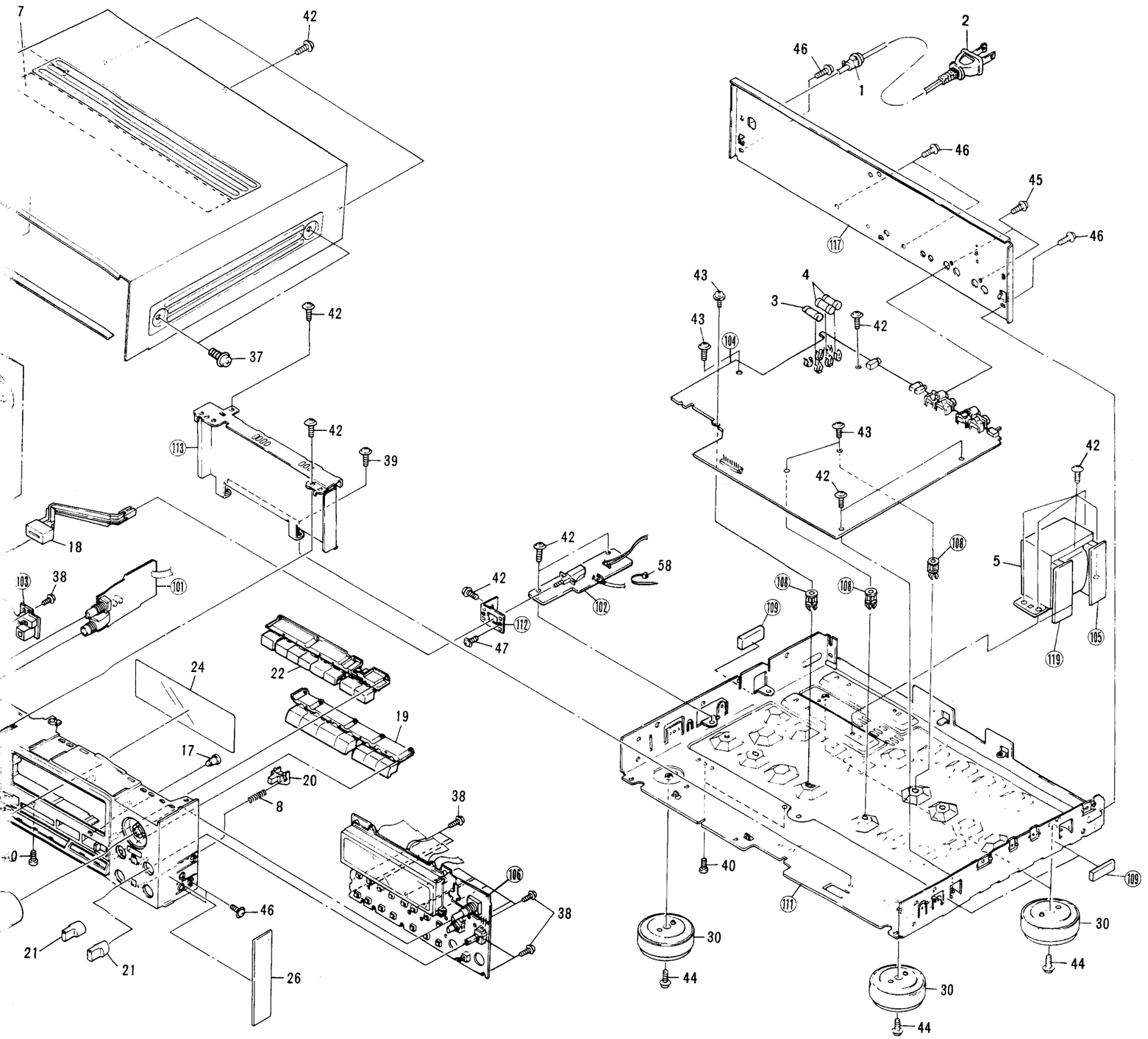
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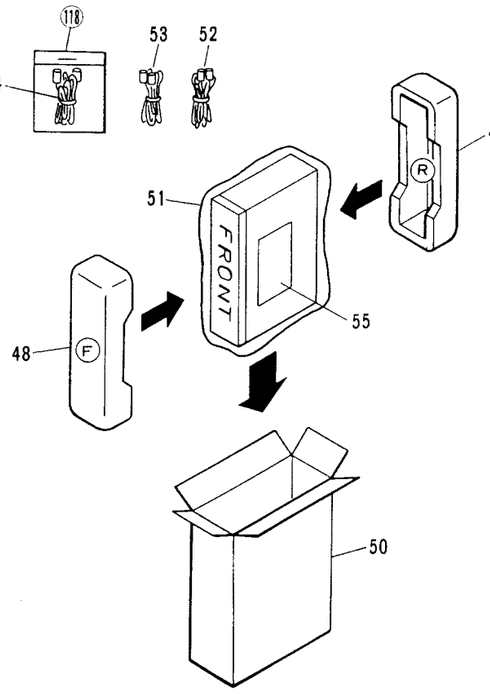
Packing
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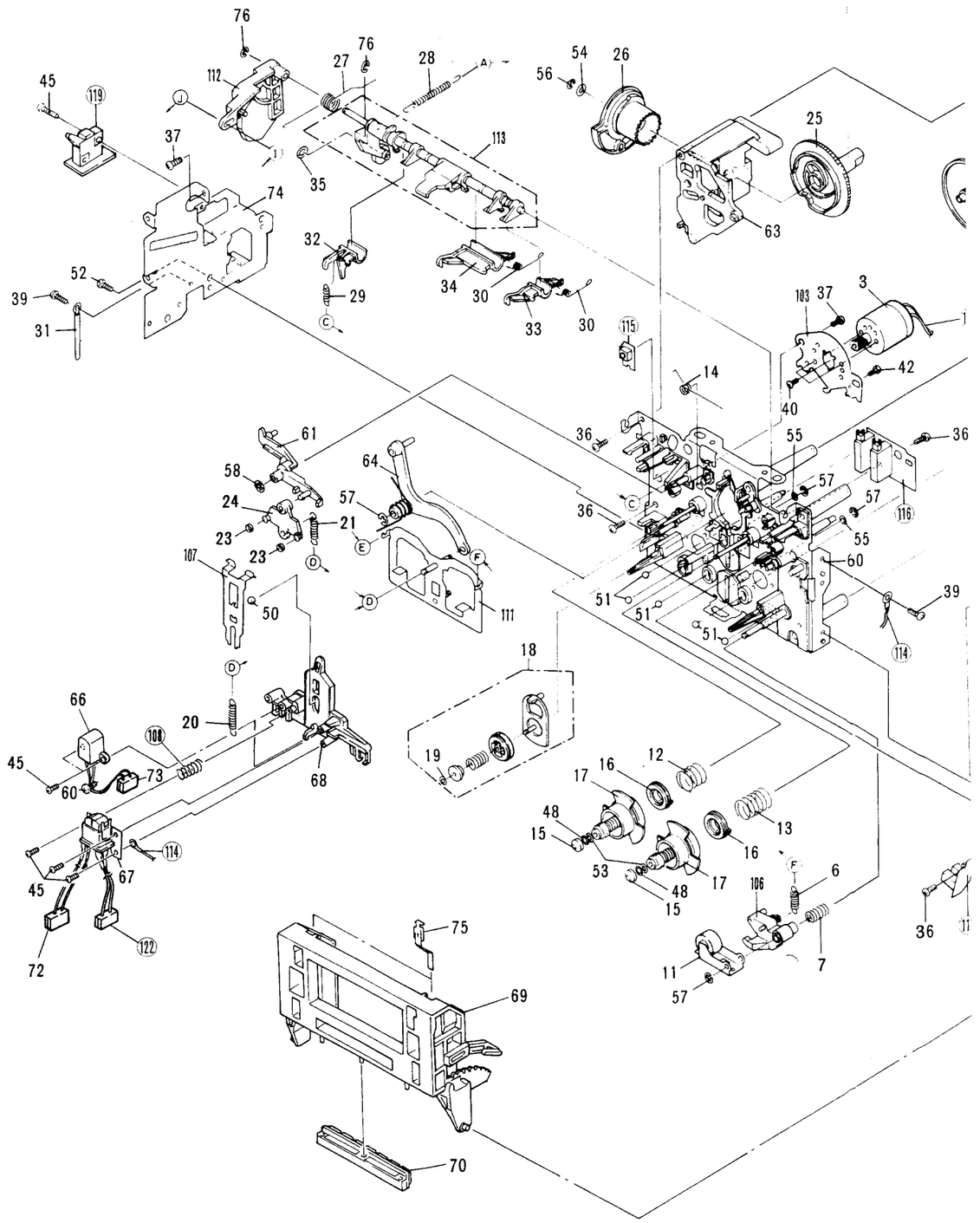
1.2 MECHANISM UNIT

Parts List of Mechanism Unit

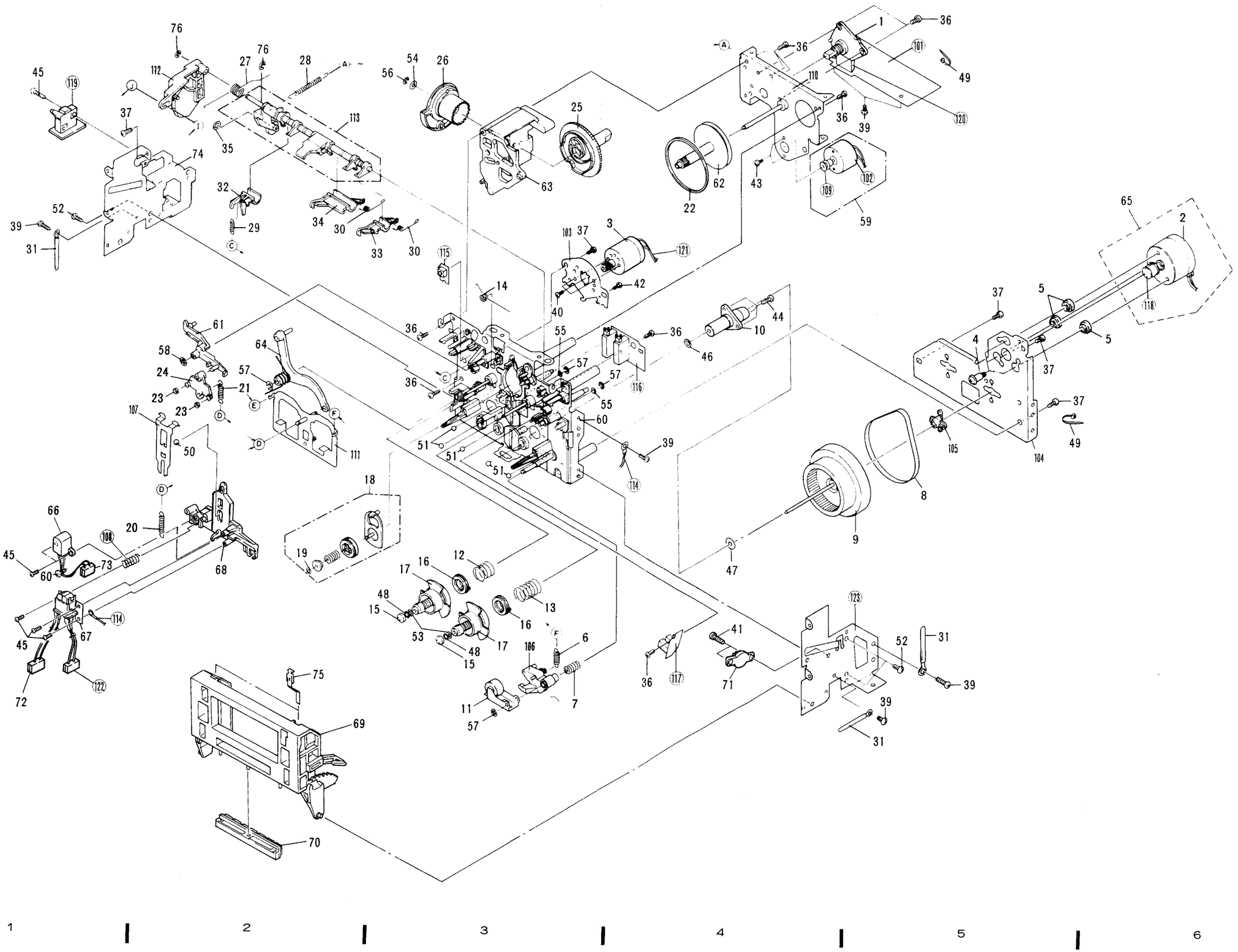
Mark	No.	Description	Part No.
	1	Rotary encoder	RSX1004
	2	Capstan motor	RXM1036
	3	Reel motor assembly	RXM1018
	4	Step screw	RBA – 064
	5	Rubber cushion	REB1125
	6	Pinch spring	RBL – 028
	7	Pinch thrust spring	RBL – 030
	8	Capstan belt	REB1143
	9	Flywheel assembly	RXA1374
	10	Metal holder assembly(A)	RXA1342
	11	Pinch roller arm (R) assembly	RXB – 876
	12	BT spring (A)	RBL – 031
	13	BT spring (B)	RBL – 032
	14	Idler pressure spring	RBL – 033
	15	Reel shaft cap (B)	RNK – 815
	16	BT disc assembly	RXB – 751
	17	Reel base assembly	RXB – 874
	18	Take – up idler assembly	RXB – 875
	19	Washer	RBF – 065
	20	Head base spring	RBL – 037
	21	Brake spring	RBL – 038
	22	Drive belt	REB1169
	23	Brake shoe	REB – 511
	24	Brake	RNL – 723
	25	Cam gear	RNK1640
	26	Side cam gear assembly	RXA1349
	27	Eject spring	RBL – 039
	28	Half pressure spring	RBL – 040
	29	REC arm spring	RBL – 041
	30	Detect arm spring	RBL – 042
	31	Cord clamper	RNH – 184
	32	REC detect arm	RNL – 733
	33	CrO_2 detect arm	RNL – 734
	34	Metal detect arm	RNL – 735
	35	Washer	RBF – 057
	36	Screw	BBZ26P080FZK
	37	Screw	BBZ30P080FZK
	38	Screw	PMB20P060FMC
	39	Screw	BCZ30P060FMC
	40	Screw	BMZ26P030FZK
	41	Screw	PBZ20P060FMC
	42	Screw	BMZ30P080FZK
	43	Screw	JGZ20P025FMC
	44	Screw	PMA26P050FZK
	45	Screw	PMZ20P080FZK
	46	Washer	RBF – 030
	47	Thrust washer (A)	RBF – 069
	48	Washer	RBF – 076
	49	Binder	REC – 371
	50	Steel ball (ϕ 3)	REF – 022

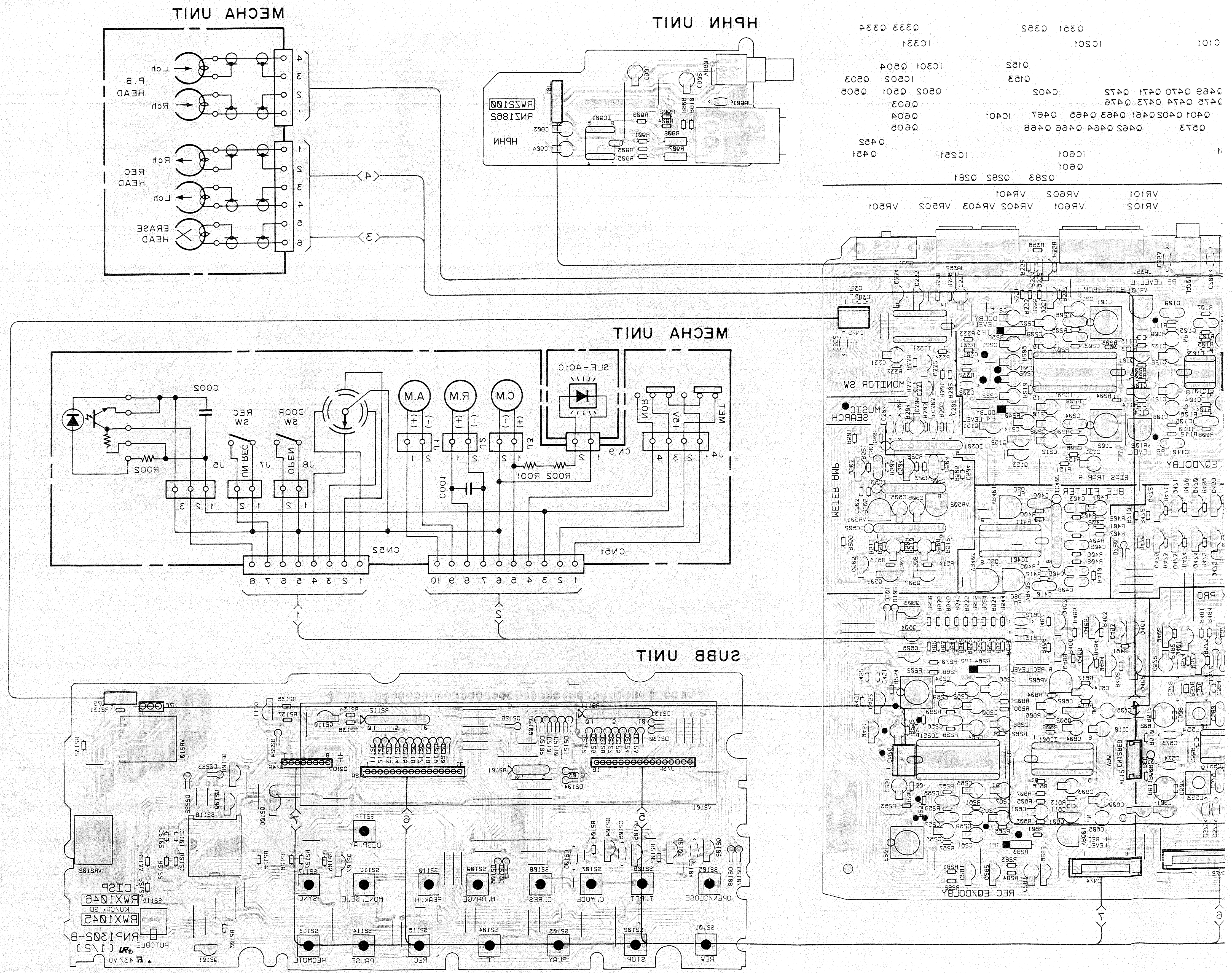
Mark	No.	Description	Part No.
	51	Steel ball (ϕ 4)	REF – 023
	52	Screw	VCT30P060FZK
	53	Washer	WA21D040D013
	54	Washer	WA26N070W040
	55	Washer	WA32D080D050
	56	E ring	YE20FUC
	57	E ring	YE25FUC
	58	Washer	YS24FBT
	59	Power motor assembly	RXX1055
	60	Mechanism chassis assembly	RXA1422
	61	Brake lever	RNK1638
	62	Second pulley assembly	RXA1350
	63	Gear base assembly	RXA1351
	64	Pinch lever assembly	RXA1360
	65	Capstan motor assembly	RXX1334
	66	E head	RPB1002
	67	R/P head	RPB1044
	68	Head base	RNK1727
	69	Door pocket	RNT1101
	70	Stabilizer	REB1161
	71	Damper assembly	REC1005
	72	Connector assembly (4P)	RKP1383
	73	Connector assembly (2P)	RKP1384
	74	Door frame (L)	RNE1442
	75	Half pressure spring	RBK1004
	76	E ring	YE30FUC
	77	Pinch return spring	RBH1299
	101	Connector unit	
	102	Power motor	
	103	Reel motor mounting plate	RNE1169
	104	Flywheel holder	RNH – 304
	105	Thrust holder	RNL – 743
	106	Pressure arm (R)	RNL – 725
	107	Head base pressure spring	RBL – 026
	108	Head adjust spring (C)	
	109	First pulley	
	110	Gear chassis assembly	RXA1171
	111	Pinch base assembly	RXB – 878
	112	Eject lever	RNL – 738
	113	Shift shaft assembly	RXB – 885
	114	Earth lead assembly	
	115	REC switch unit	
	116	Tape selector unit	
	117	Sensor unit (A)	
	118	Motor pulley	
	119	Door switch unit	
	120	2.5mm pich side post (5P)	
	121	Vinyl wire (2P)	
	122	Connector assembly (4P)	
	123	Door frame (R)	

Parts List of Mechanism Unit



Parts List of Mechanism Unit





MECHA UNIT
P.B HEAD
REC HEAD
ERASE HEAD
Lch
Rch
HPHN UNIT
RWZ2100
RNZ1862
HPHN
MECHA UNIT
SLF-401C
M.A
R.M
C.M
REC SW
DOOR SW
UN REC
OPEN
C002
R002
R001
C001
CN9
MET
NOR
+5V
CN52
CN51
SUBB UNIT
DISP
RWX1046
KU/CA, SD
RWX1045
RNP1302-B
(1/2)
AUTOBLE
DISPLAY
SYNC
MONI. SELE
PEAK.H
M.RANGE
C.RES
C.MODE
T.RET
OPEN/CLOSE
RECMUTE
PAUSE
REC
FF
PLAY
STOP
REW
Q333 Q334
Q351 Q352
IC331
IC201
IC301 Q504
Q152
IC502 Q503
Q153
Q502 Q501 Q505
IC402
Q469 Q470 Q471 Q472
Q475 Q474 Q473 Q476
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IC401
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Q465 Q463 Q461 Q402 Q401
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Q573
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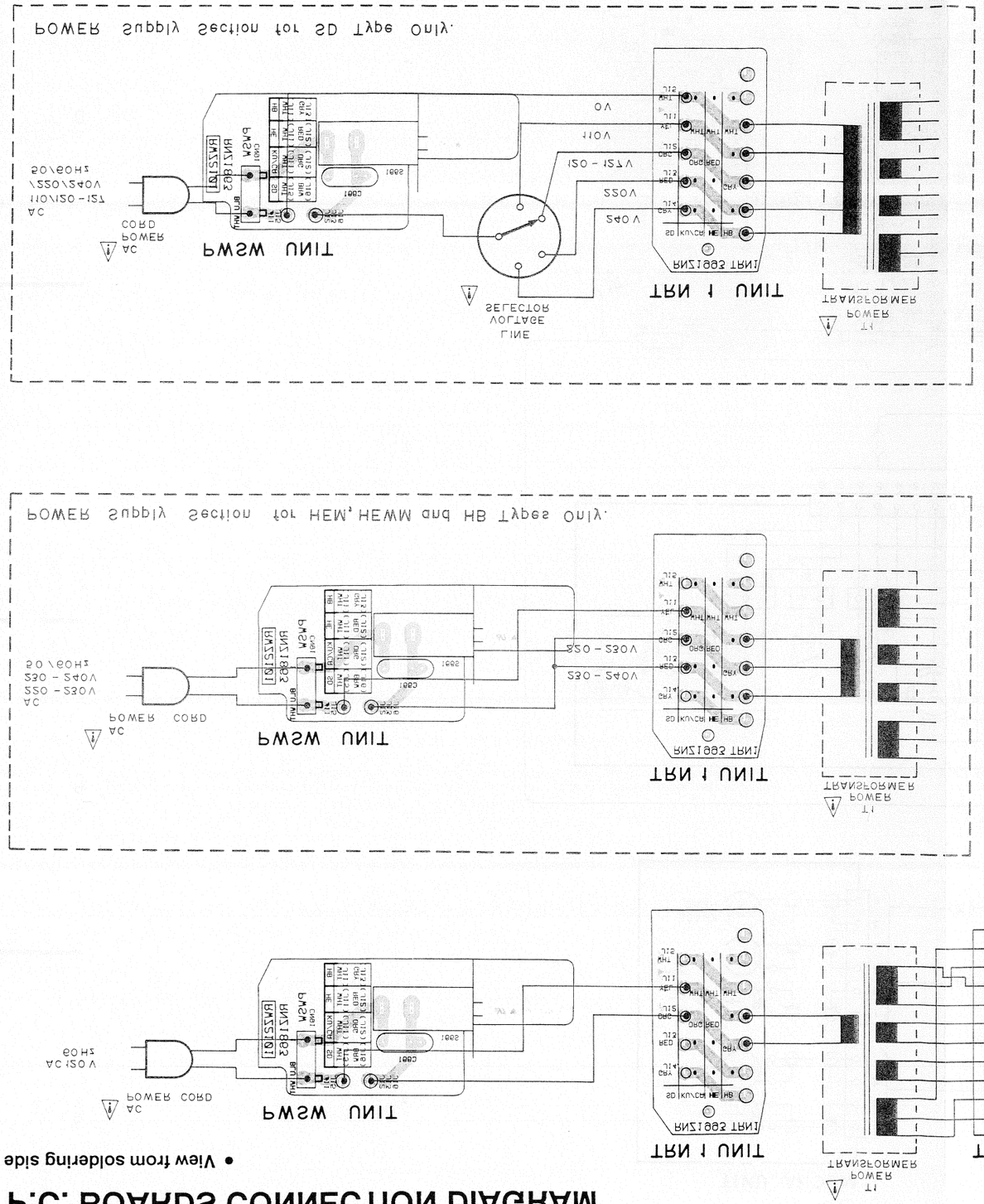
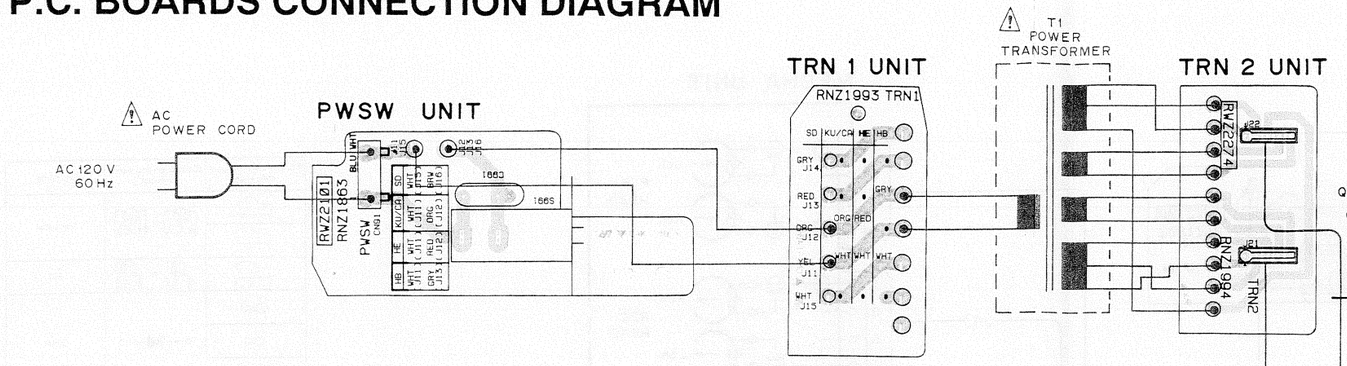
VR401
VR602
VR101
VR501
VR502
VR403 VR402
VR601
VR102
MONITOR SW
MUSIC SEARCH
METER AMP
DOLBY LEVEL
BIAS TRAP L
BIAS TRAP R
PB LEVEL L
PB LEVEL R
EQ/DOLBY
BLE FILTER
R REC LEVEL
L REC LEVEL
REC EQ/DOLBY

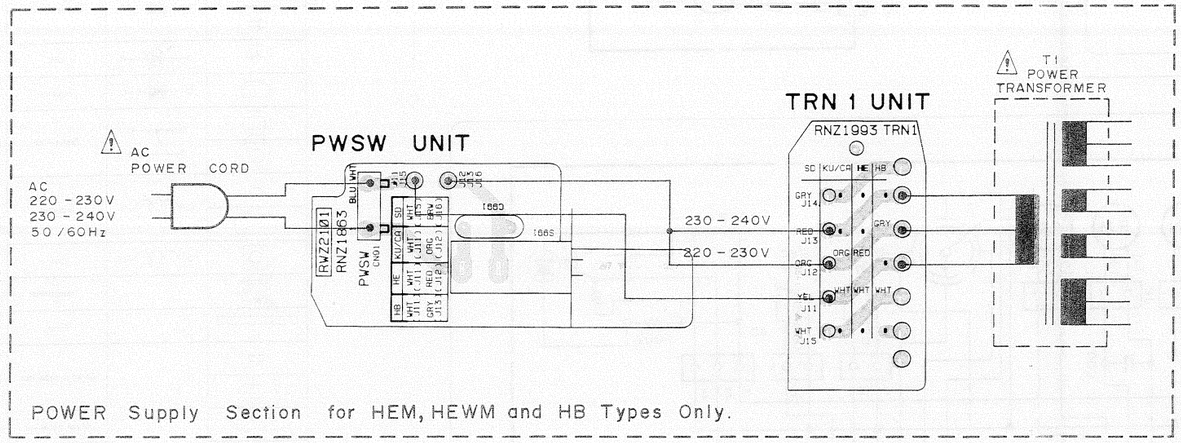
4. P.C. BOARDS CONNECTION DIAGRAM

• View from soldering side

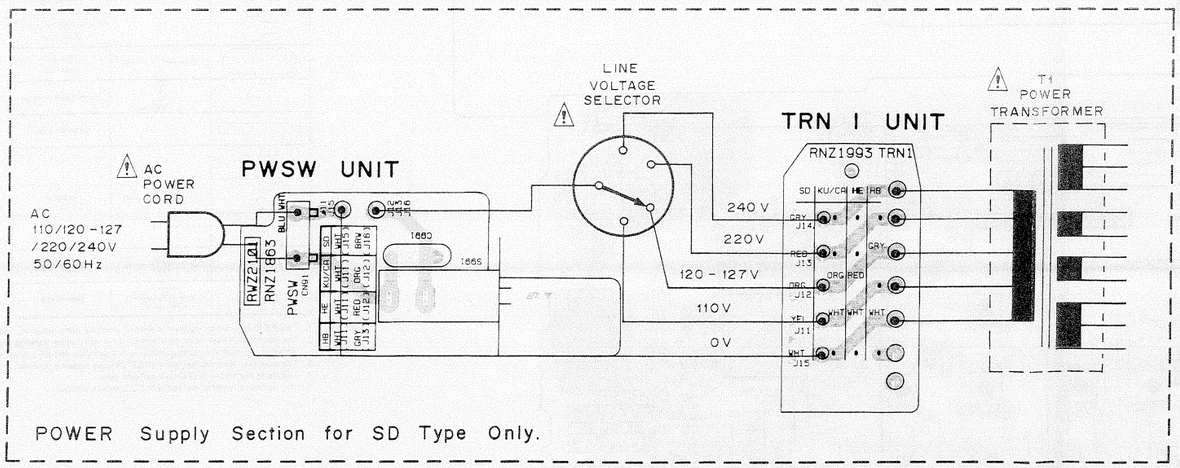


4. P.C. BOARDS CONNECTION DIAGRAM

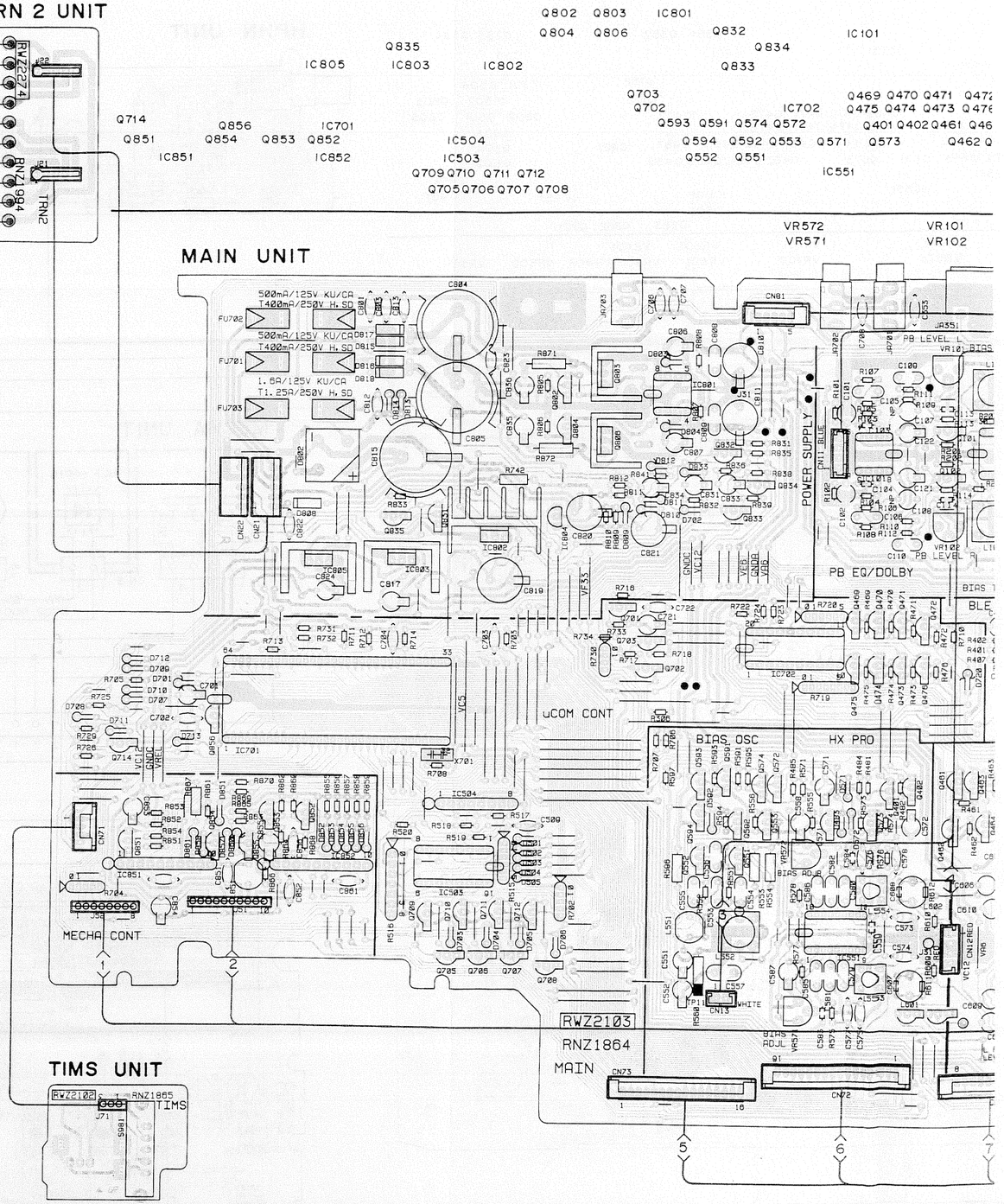




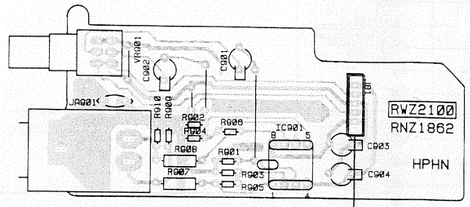
POWER Supply Section for HEM, HEWM and HB Types Only.



POWER Supply Section for SD Type Only.



HPHN UNIT



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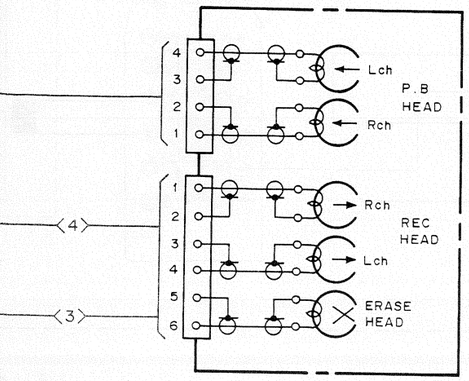

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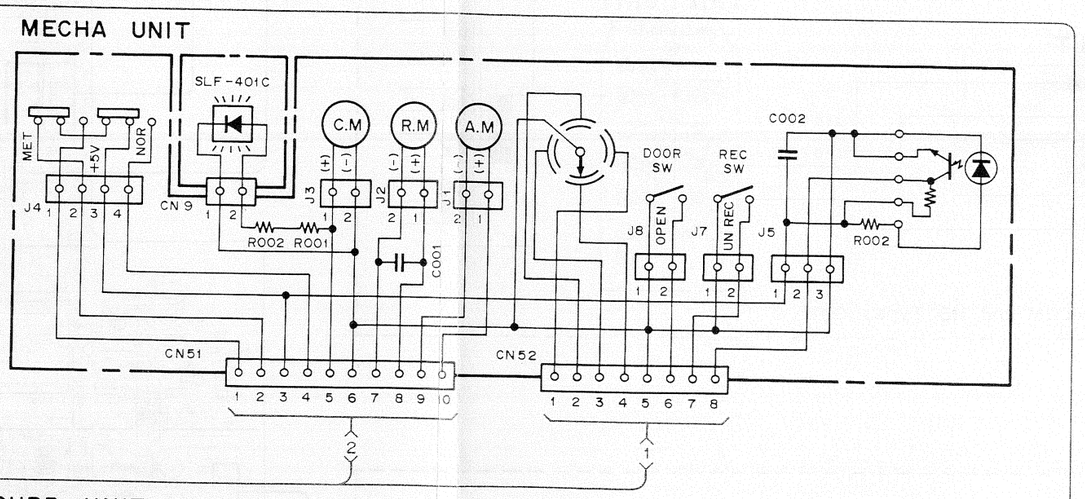
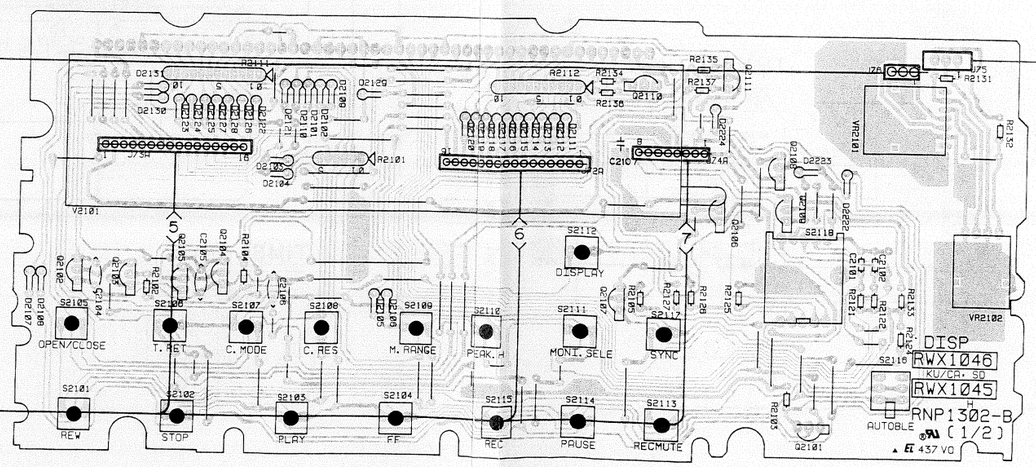
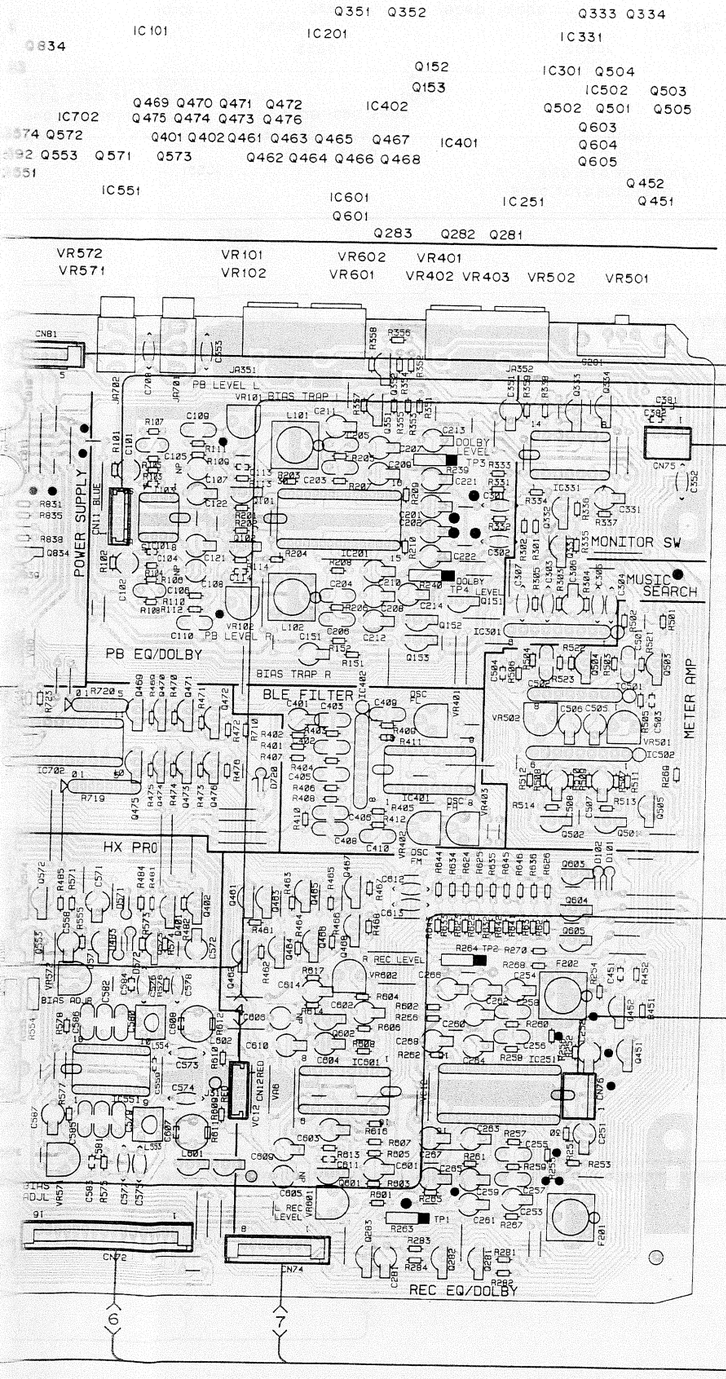


SUBB UNIT

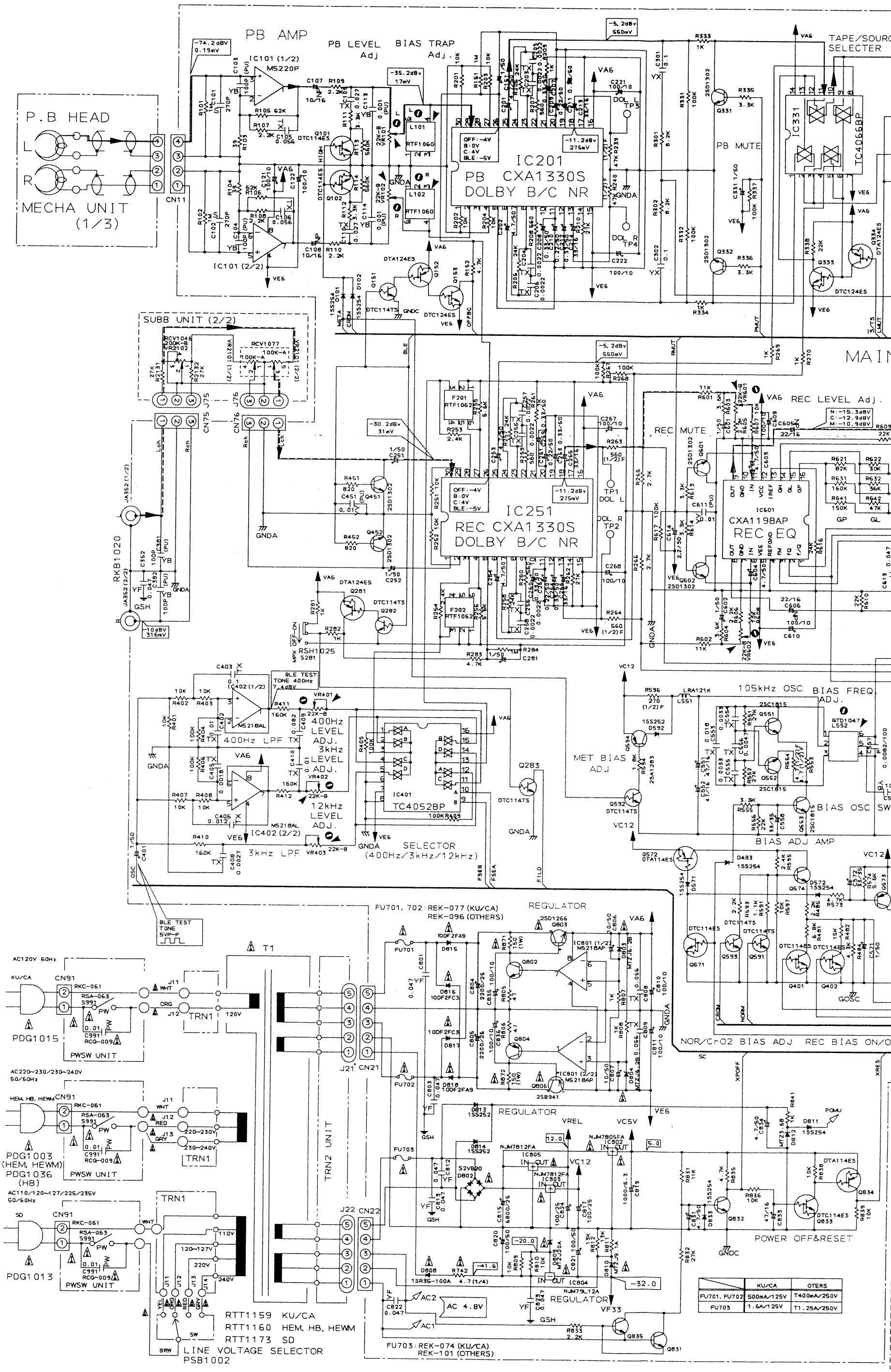




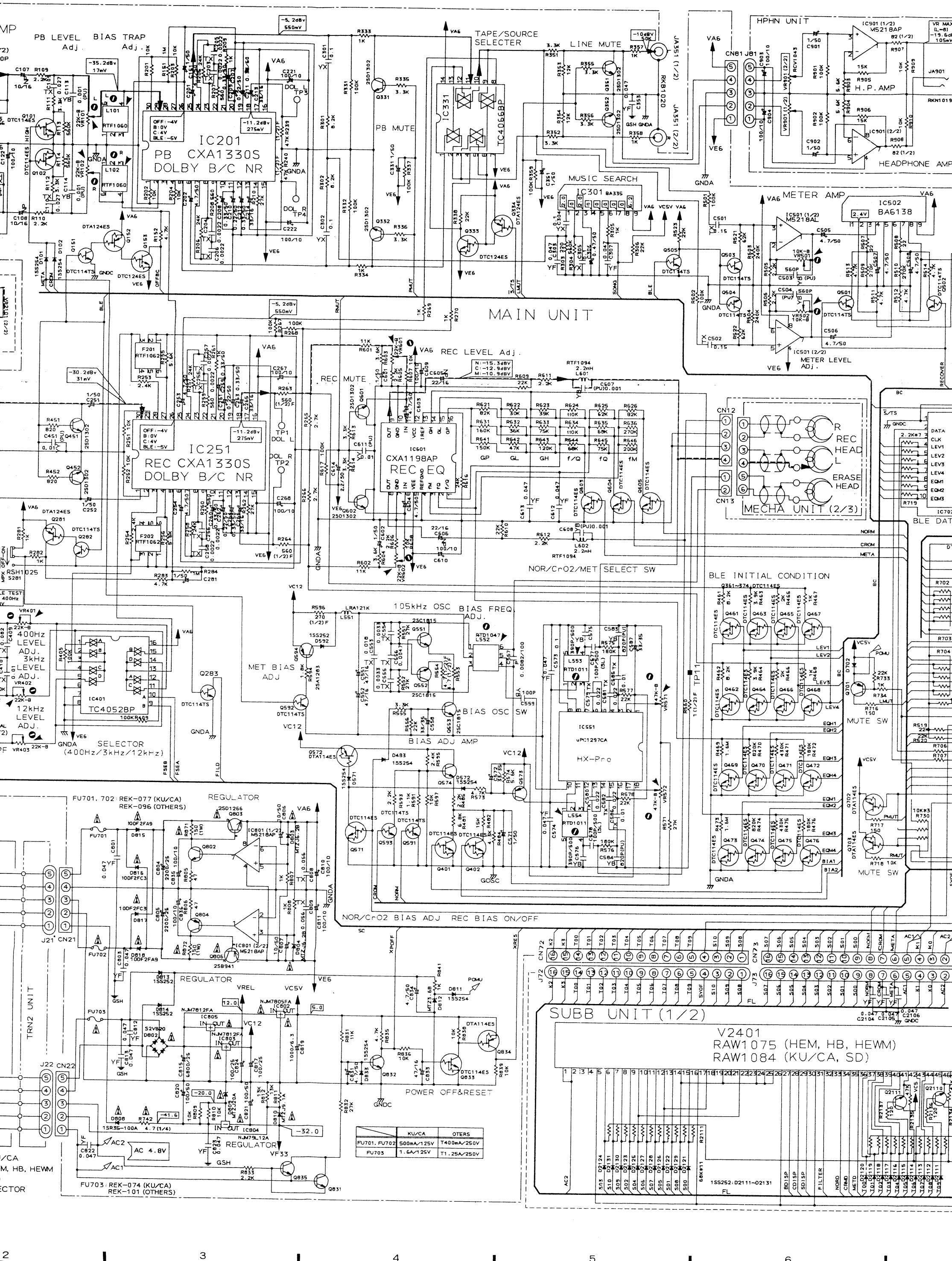
P.C.B. pattern diagram indication	Corresponding part symbol	Part name
		Transistor
		FET
		Diode
		Zenner diode
		LED
		Varactor
		Tact switch
		Inductor
		Coil
		Transformer
		Filter
		Ceramic capacitor
		Mylar capacitor
		Styrol capacitor
		Electrolytic capacitor (Non polarized)
		Electrolytic capacitor (Noiseless)
		Electrolytic capacitor (Polarized)
		Electrolytic capacitor (Polarized)
		Power capacitor
		Semi-fixed resistor
		Resistor array
		Resistor
		Resonator
		Thermistor

1. This P.C.B. connection diagram is viewed from the parts mounted side.
2. The parts which have been mounted on the board can be replaced with those shown with the corresponding wiring symbols listed in the above Table.
3. The capacitor terminal marked with ▭ shows negative terminal.
4. The diode marked with ○ shows cathode side.
5. The transistor terminal marked with ▭ shows emitter.

5. SCHEMATIC DIAGRAM



AM


MAIN UNIT
IC201
PB CXA1330S
DOLBY B/C NR
IC251
REC CXA1330S
DOLBY B/C NR
IC601
CXA1198AP
REC EQ
IC331
TC4066BP
IC301 BA335
IC401
TC4052BP
IC551
μPC1297CA
HX-Pro
IC901 (1/2)
M5218AP
IC901 (2/2)
M5218AP
IC501 (1/2)
M5218AL
IC502
BA6138
IC501 (2/2)
METER LEVEL ADJ.
IC801 (1/2)
M5218AP
IC801 (2/2)
M5218AP
IC802
NJM7805FA
IC803
NJM7812FA
IC804
NJM79L12A
IC805
NJM7812FA
PB LEVEL Adj.
BIAS TRAP Adj.
TAPE/SOURCE SELECTER
LINE MUTE
PB MUTE
MUSIC SEARCH
REC MUTE
REC LEVEL Adj.
HPHN UNIT
H.P. AMP
HEADPHONE AMP
METER AMP
MUTE SW
400Hz LEVEL ADJ.
3kHz LEVEL ADJ.
12kHz LEVEL ADJ.
SELECTOR (400Hz/3kHz/12kHz)
MET BIAS ADJ
105kHz OSC BIAS FREQ ADJ.
BIAS OSC SW
BIAS ADJ AMP
NOR/CrO2/MET SELECT SW
BLE INITIAL CONDITION
REGULATOR
POWER OFF&RESET
REC HEAD L
ERASE HEAD
MECHA UNIT (2/3)
SUBB UNIT (1/2)
V2401
RAW1075 (HEM, HB, HEWM)
RAW1084 (KU/CA, SD)
TRN2 UNIT
FU701, 702: REK-077 (KU/CA)
REK-096 (OTHERS)
FU703: REK-074 (KU/CA)
REK-101 (OTHERS)
AC 4.8V
-5.2dBv 550mV
-35.2dBv 17mV
-11.2dBv 275mV
-30.2dBv 31mV
-10dBv 50K
OFF: -4V
B: 0V
C: 4V
BLE: -5V
N: -15.3dBV
C: -12.9dBV
M: -10.9dBV
RTF1094 2.2mH L601
RTF1094 2.2mH L602
RKB1020
RKN1019
RSH1025
JA351 (1/2)
JA351 (2/2)
JA901
CN81 J81
CN12
CN13
CN21
J21
CN22
J22
CN72
CN73
J72
J73
TP1 DOL L
TP2 DOL R
TP3 DOL L
TP4 DOL R
VA6
VE6
VC12
VC5V
VF33
GNDA
GNDC
GSH
GOSC
QSH GNDA
PMUT
RMUT
BLE
NORM
CROM
META
FL
RECOVER
S/TS
POMU
LMUT
XPOFF
XRES
SC
BDISP
CDISP
SDISP
FILTER
NORD
CRMD
METD
LEV1
LEV2
LEV3
LEV4
EQH1
EQH2
EQH3
EQH4
EQM1
EQM2
EQM3
EQM4
BIA1
BIA2
AC1
AC2
VCS
FSEB
FSEA
FILD
OFFBC
SONQ
S/TS
LMUT
VR401 400Hz LEVEL ADJ.
VR402 3kHz LEVEL ADJ.
VR403 12kHz LEVEL ADJ.
VR501 10K-B
VR502 10K-B
VR571 47K-B
VR601 22K-B
VR602 22K-B
VR701 100F2FA9
VR702 100F2FA9
VR703 S2VB20
S281 MPX OFF-ON
TEST 400Hz
REC MUTE
PB MUTE
MUSIC SEARCH
BLE INITIAL CONDITION
MUTE SW
POWER OFF&RESET
NOR/CrO2 BIAS ADJ REC BIAS ON/OFF
NOR/CrO2/MET SELECT SW
105kHz OSC BIAS FREQ ADJ.
BIAS OSC SW
BIAS ADJ AMP
METER LEVEL ADJ.
SUBB UNIT (1/2)
HEADPHONE AMP
MECHA UNIT (2/3)
TRN2 UNIT
SELECTOR (400Hz/3kHz/12kHz)
REGULATOR
KU/CA
OTERS
FU701, FU702
500mA/125V
T400mA/250V
FU703
1.6A/125V
T1.25A/250V
1SS252: D2111~D2131
68K*11
10K*3
22K*7

HPHN UNIT
HEADPHONE AMP
H.P. AMP
LINE MUTE
MUSIC SEARCH
METER AMP
METER LEVEL ADj.
REEL MOTOR DRIVE
ASSIST MOTOR DRIVE
MECHA UNIT (2/3)
BLE DATA CONVERSION
SC
SYSTEM CONTROL
BLE INITIAL CONDITION
MUTE SW
SUBB UNIT (1/2)
MECHA (3/3)
REMOCON
CD SYNCHRO
TIMS UNIT
DOOR SW
REC SW
SENSOR
FL IND DRIVER
DOLBY NR
V2401
RAW1075 (HEM, HB, HEWM)
RAW1084 (KU/CA, SD)
NOTE If the parts are not identified in the the diagram, the followings are used.
2SC1740S
2SA933S
1SS254
PLAYBACK SIGNAL
RECORDING SIGNAL
CT-676総合回路図

5. SWITCHES (Underline indicates switch position)

TIMS UNIT

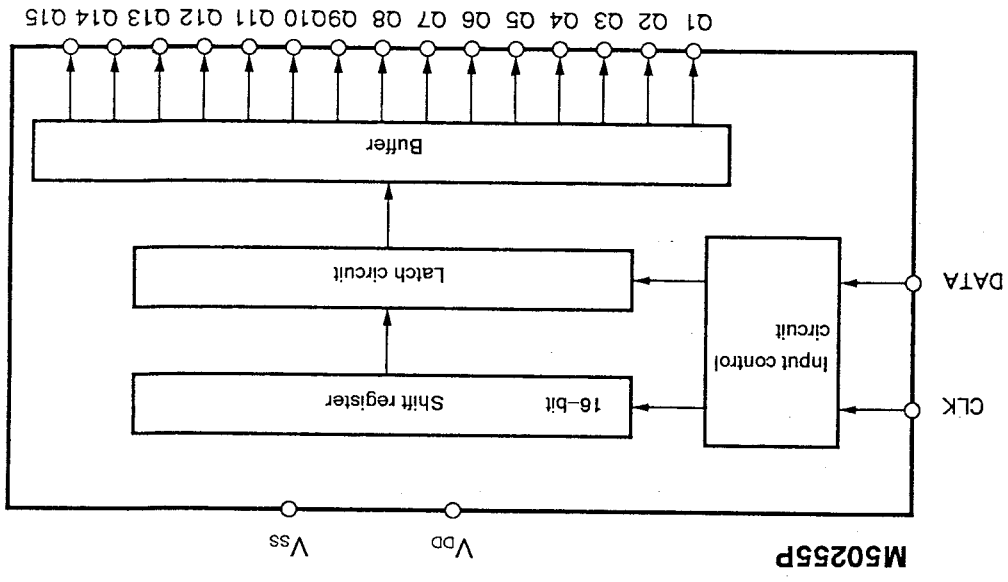
S981 : PLAY – OFF – REC

PWSW UNIT

S991 : ON – OFF

SUBB UNIT

S2101 : REW
S2102 : STOP
S2103 : PLAY
S2104 : FF
S2105 : DOOR OPEN/CLOSE
S2106 : RETURN
S2107 : COUNTER MODE
S2108 : COUNTER RESET
S2109 : METER RANGE
S2110 : HOLD MODE
S2111 : DISP OFF
S2112 : MONITOR
S2113 : MUTE
S2114 : PAUSE
S2115 : REC
S2116 : BLE
S2117 : CD – SYNCRO
S2118 : DOLBY B – OFF – C



6. P.C.B's PARTS LIST

NOTES:

- Parts without part number cannot be supplied.
- Parts marked by "⊙" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.
- The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- When ordering resistors, first convert resistance values into code form as shown in the following examples.

Ex.1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J=5%, and K=10%)

560 Ω → 56 × 10¹ → 561 ····· RD1/4PS 5 6 1 J
47k Ω → 47 × 10³ → 473 ····· RD1/4PS 4 7 3 J
0.5 Ω → 0R5 ····· RN2H 0 R 5 K
1 Ω → 010 ····· RS1P 0 1 0 K

Ex.2 When there are 3 effective digits (such as in high precision metal film resistors).

5.62k Ω → 562 × 10¹ → 5621 ····· RN1/4SR 5 6 2 1 F

Mark	No.	Description	Part No.
		SUBB UNIT	
		SEMICONDUCTORS	
	Q2101	TRANSISTOR	2SA933S
	Q2102	TRANSISTOR	DTC124ES
	Q2103	TRANSISTOR	DTA124ES
	Q2104	TRANSISTOR	DTC124ES
	Q2105	TRANSISTOR	DTA124ES
	Q2106	TRANSISTOR	DTC124ES
	Q2107	TRANSISTOR	DTA124ES
	Q2108, 2109	DIGITAL TRANSISTOR	DTA114ES
	Q2110, 2111	TRANSISTOR	2SC1740S
	D2101-2131	DIODE	1SS252
	D2222-2224	DIODE	1SS252
		SWITCHES	
	S2101-2115		RSG1039
	S2116	SWITCH	RSG1027
	S2117		RSG1039
	S2118		RSB1001
		CAPACITORS	
	C2101, 2102	AXIAL CAPACITOR	CKPUYB821K50
	C2104-2106	CERAMIC CAPACITOR	CKCYF473Z50
	C2107	CERAMIC CAPACITOR	CKCYF103Z50
		RESISTORS	
	R2101	RESISTOR ARRAY 100K	RA5T□□□J
	R2102-2105	CARBONFILM RESISTOR	RD1/6PM□□□J
	R2111	RESISTOR ARRAY (68K)	RA11T□□□J
	R2112	RESISTOR ARRAY(100K)	RA10T□□□J
	R2121, 2122	CARBONFILM RESISTOR	RD1/6PM□□□J
	R2124-2127	CARBONFILM RESISTOR	RD1/6PM□□□J
	R2131-2137	CARBONFILM RESISTOR	RD1/6PM□□□J
	VR2101	VARIABLE RESISTOR(100K)	RCV1077
	VR2102	VARIABLE RESISTOR(200K)	RCV1046
		OTHERS	
	V2101		RAV1084

Mark	No.	Description	Part No.
		REC SW UNIT	
		SWITCHES	
	S3	SWITCH	RSG-143
		TAPE SELECTOR UNIT	
		SWITCHES	
	S1, 2		RSH-070
		SENSOR UNIT (A)	
		SEMICONDUCTORS	
	D1		GP1A51HR
		CAPACITORS	
	C2	CERAMIC CAPACITOR	CKPUYY103N16
		RESISTORS	
	R2	CARBONFILM RESISTOR	RD1/6PM□□□J
		DOOR SW UNIT	
		SWITCHES	
	S4		RSK1002
		HPHN UNIT	
		SEMICONDUCTORS	
	IC901	OP-AMP, IC	M5218AP
		CAPACITORS	
	C901, 902	ELECTR. CAPACITOR	CEAS010M50
	C903, 904	ELECTR. CAPACITOR	CEAS101M10
		RESISTORS	
	R901-906	CARBONFILM RESISTOR	RD1/6PM□□□J
	R907, 908	CARBONFILM RESISTOR	RD1/2LF□□□J
	R909, 910	CARBONFILM RESISTOR	RD1/6PM□□□J
	VR901	VARIABLE RESISTOR(20K)	RCV1043
		OTHERS	
	JA901	JACK	RKN1019

Mark	No.	Description	Part No.
		PWSW UNIT	
		SWITCHES	
⚠	S991	SWITCH	RSA-063
		CAPACITORS	
⚠	C991	CAPACITOR (0.01)	RCG-009
		TIMS UNIT	
		SWITCHES	
	S981		RSH1011
		MAIN UNIT	
		SEMICONDUCTORS	
	IC101	OP-AMP-IC	M5220P
	IC201	DOLBY B/C IC	CXA1330S
	IC251	DOLBY B/C IC	CXA1330S
	IC301	IC	BA335
	IC331	LOGIC IC	TC4066BP
	IC401	LOGIC IC	TC4052BP
	IC402	OP-AMP, IC	M5218AL
	IC501	OP-AMP, IC	M5218AL
	IC502		BA6138
	IC503	CMOS LOGIC IC	TC4050BP
	IC504	DUAL-COMPARATOR IC	M5233L
	IC551	DOLBY HX PRO IC	UPC1297CA
	IC601	REC EQUALIZER IC	CXA1198AP
	IC701	MCU	PD4312A
	IC702	OUTPUT EXPANDER IC	M50255P
	IC801	OP-AMP, IC	M5218AP
⚠	IC802	REGULATOR IC	NJM7805FA
⚠	IC803	REGULATOR IC	NJM7812FA
⚠	IC804	REGULATOR IC	NJM79L12A
⚠	IC805	REGULATOR IC	NJM7812FA
	IC851	LINEAR IC	TA7291P
	IC852		LB1641
	Q101, 102	TRANSISTOR	DTC114ES
	Q151	DIGITAL TRANSISTOR	DTC114TS
	Q152	TRANSISTOR	DTA124ES
	Q153	TRANSISTOR	DTC124ES
	Q281	TRANSISTOR	DTA124ES
	Q282, 283	DIGITAL TRANSISTOR	DTC114TS
	Q331, 332	TRANSISTOR	2SD1302
	Q333	TRANSISTOR	DTC124ES
	Q334	TRANSISTOR	DTA124ES
	Q351, 352	TRANSISTOR	2SD1302
	Q401, 402	TRANSISTOR	DTC114ES
	Q451, 452	TRANSISTOR	2SD1302
	Q461-476	TRANSISTOR	DTC114ES
	Q501-505	DIGITAL TRANSISTOR	DTC114TS
	Q551-553	TRANSISTOR	2SC1815
	Q571	TRANSISTOR	DTC114ES
	Q572	DIGITAL TRANSISTOR	DTA114ES
	Q573	TRANSISTOR	2SA933S
	Q574	TRANSISTOR	2SC1740S

Mark	No.	Description	Part No.
		Q591-593 DIGITAL TRANSISTOR	DTC114TS
		Q594 TRANSISTOR	2SA1283
		Q601, 602 TRANSISTOR	2SD1302
		Q603-605 TRANSISTOR	DTC114ES
		Q701 TRANSISTOR	2SA933S
		Q702, 703 DIGITAL TRANSISTOR	DTA114ES
		Q705-708 DIGITAL TRANSISTOR	DTA114ES
		Q709-712 TRANSISTOR	DTC114ES
		Q714 TRANSISTOR	DTC114ES
		Q802 TRANSISTOR	2SC1740S
⚠		Q803 TRANSISTOR	2SD1266
		Q804 TRANSISTOR	2SA933S
⚠		Q806 TRANSISTOR	2SB941
		Q831, 832 TRANSISTOR	2SC1740S
		Q833 TRANSISTOR	DTC114ES
		Q834 DIGITAL TRANSISTOR	DTA114ES
		Q835 TRANSISTOR	2SC1740S
		Q851 DIGITAL TRANSISTOR	DTC114TS
		Q852, 853 TRANSISTOR	2SA933S
		Q854 TRANSISTOR	DTC114ES
		Q855 TRANSISTOR	2SC1740S
		Q856 DIGITAL TRANSISTOR	DTC114TS
		D501-505 DIODE	1SS254
		D571, 572 DIODE	1SS254
		D592 DIODE	1SS252
		D701 ZENER DIODE	MTZJ9.1A
		D702 DIODE	1SS254
		D703-706 DIODE	1SS252
		D707-713 DIODE	1SS254
		D720 ZENER DIODE	MTZJ3.3B
⚠		D802	S2VB20
⚠		D803, 804 ZENER DIODE	MTZJ6.2B
⚠		D808 RECTIFIER DIODE	1SR35-100A
⚠		D809 ZENER DIODE	MTZJ20A
⚠		D810 ZENER DIODE	MTZJ9.1A
		D811 DIODE	1SS254
		D812 ZENER DIODE	MTZJ3.6B
		D813, 814 DIODE	1SS252
⚠		D815 DIODE	1ODF2FA9
⚠		D816 DIODE	1ODF2FC3
⚠		D817 DIODE	1ODF2FC3
⚠		D818 DIODE	1ODF2FA9
		D833 DIODE	1SS254
		D851 DIODE	1SS254
		D852-856 DIODE	1SS252
		D857 ZENER DIODE	MTZJ4.3B
		D858 DIODE	1SS254
		D860 ZENER DIODE	MTZJ11B
		D861 DIODE	1SS254
		SWITCHES	
		S281	RSH102S

Mark	No.	Description	Part No.
		C101, 102 PL. STYRENE CAPACITOR	CQSP271J50
		C103, 104 AXIAL CAPACITOR	CKPUYB101K50
		C105, 106 AUDIO FILM CAPACITOR	CFTXA563J50
		C107, 108 ELECTR. CAPACITOR	CEANP100M16
		C109, 110 AUDIO FILM CAPACITOR	CFTXA273J50
		C113, 114 CERAMIC CAPACITOR	CKPUYB102K50
		C121, 122 ELECTR. CAPACITOR	CEAS101M10
		C151 ELECTR. CAPACITOR	CEAS010M50
		C201, 202 ELECTR. CAPACITOR	CEYA4R7M50
		C203-206 AUDIO FILM CAPACITOR	CFTXA223J50
		C207, 208 ELECTR. CAPACITOR	CEASR33M50
		C209, 210 ELECTR. CAPACITOR	CEASR22M50
		C211, 212 ELECTR. CAPACITOR	CEASR33M50
		C213, 214 ELECTR. CAPACITOR	CEAS330M16
		C221, 222 ELECTR. CAPACITOR	CEAS101M10
		C251, 252 ELECTR. CAPACITOR	CEYA010M50
		C253, 254 ELECTR. CAPACITOR	CEAS4R7M50
		C255-258 AUDIO FILM CAPACITOR	CFTXA222J50
		C259, 260 ELECTR. CAPACITOR	CEASR33M50
		C261, 262 ELECTR. CAPACITOR	CEASR22M50
		C263, 264 ELECTR. CAPACITOR	CEASR33M50
		C265, 266 ELECTR. CAPACITOR	CEYA330M16
		C267, 268 ELECTR. CAPACITOR	CEAS101M10
		C281 ELECTR. CAPACITOR	CEAS010M50
		C301, 302 CERAMIC CAPACITOR	CGCYX104K2S
		C303 CERAMIC CAPACITOR	CKCYF473Z50
		C304, 305 CERAMIC CAPACITOR	CGCYX104K2S
		C306 ELECTR. CAPACITOR	CEASR47M50
		C307 CERAMIC CAPACITOR	CKCYF473Z50
		C331 ELECTR. CAPACITOR	CEAS010M50
		C351 ELECTR. CAPACITOR	CEAS010M50
		C352, 353 CERAMIC CAPACITOR	CKCYF473Z50
		C381, 382 AXIAL CAPACITOR	CKPUYB101K50
		C401 ELECTR. CAPACITOR	CEAS010M50
		C402 AUDIO FILM CAPACITOR	CFTXA103J50
		C403 AUDIO FILM CAPACITOR	CFTXA104J50
		C405 AUDIO FILM CAPACITOR	CFTXA182J50
		C406 AUDIO FILM CAPACITOR	CFTXA123J50
		C408	CFTXA272J50
		C409 AUDIO FILM CAPACITOR	CFTXA823J50
		C410 AUDIO FILM CAPACITOR	CFTXA103J50
		C451 CERAMIC CAPACITOR	CKPUYY103N16
		C501, 502 AUDIO FILM CAPACITOR	CFTXA154J50
		C503, 504 AXIAL CAPACITOR	CKPUYB561K50
		C505-508 ELECTR. CAPACITOR	CEAS4R7M50
		COILS/TRANSFORMERS	
		L101, 102 COIL	RTF1060
		L551 RADIAL INDUCTOR	LRA121K
		L552 COIL	RTD1047
		L553, 554	RTD1011
		L601, 602 COIL	RTF1094
		L851	RTF1068
		F201, 202 FILTER	RTF1062
		CAPACITORS	

Mark	No.	Description	Part No.
		C509 CERAMIC CAPACITOR	CKCYF473Z50
		C551, 552 ELECTR. CAPACITOR	CEAS470M16
		C553 AUDIO FILM CAPACITOR	CFTXA183J50
		C554, 555 AUDIO FILM CAPACITOR	CFTXA332J50
		C556 AUDIO FILM CAPACITOR	CFTXA472J50
		C557 PL. PROPYTENE CAPACITOR	CQPA822J100
		C558 ELECTR. CAPACITOR	CEAS330M35
		C559 AXIAL CAPACITOR	CKPUYB101K50
		C571 ELECTR. CAPACITOR	CEAS010M50
		C572 ELECTR. CAPACITOR	CEAS330M35
		C573, 574 CERAMIC CAPACITOR	CKCYF473Z50
		C575, 576 CERAMIC CAPACITOR	CKCYB391K500
		C577, 578 CERAMIC CAPACITOR	CCCSL101K500
		C579-582 AUDIO FILM CAPACITOR	CFTXA223J50
		C583, 584 AXIAL CAPACITOR	CKPUYB821K50
		C585, 586 AUDIO FILM CAPACITOR	CFTXA103J50
		C587 ELECTR. CAPACITOR	CEAS330M35
		C601, 602 ELECTR. CAPACITOR	CEAS010M50
		C603, 604 ELECTR. CAPACITOR	CEAS4R7M50
		C605, 606 ELECTR. CAPACITOR	CEANP220M16
		C607, 608 CERAMIC CAPACITOR	CKPUYB102K50
		C609, 610 ELECTR. CAPACITOR	CEAS101M10
		C611 CERAMIC CAPACITOR	CKPUYY103N16
		C612, 613 CERAMIC CAPACITOR	CKCYF473Z50
		C614 ELECTR. CAPACITOR	CEAS22M50
		C701 ELECTR. CAPACITOR	CEAS101M10
		C702-704 CERAMIC CAPACITOR	CKCYF103Z50
		C706, 707 CERAMIC CAPACITOR	CKCYF103Z50
		C708 CERAMIC CAPACITOR	CKCYF473Z50
		C721 ELECTR. CAPACITOR	CEAS470M16
		C722 CERAMIC CAPACITOR	CKCYF103Z50
		C801 CERAMIC CAPACITOR	CKCYF473Z50
		C803 CERAMIC CAPACITOR	CKCYF473Z50
		C804, 805 ELECTR. CAPACITOR	CENA222M25
		C806, 807 ELECTR. CAPACITOR	CEAS100M50
		C808, 809 AUDIO FILM CAPACITOR	CFTXA563J50
		C810, 811 ELECTR. CAPACITOR	CEAS101M10
		C812, 813 CERAMIC CAPACITOR	CKCYF473Z50
		C815 CAPACITOR (6800/2S)	YCH1078
		C817 ELECTR. CAPACITOR	CEAS101M25
		C819 ELECTR. CAPACITOR	CEAS102M6R3
		C820, 821 ELECTR. CAPACITOR	CEAS101M50
		C822, 823 CERAMIC CAPACITOR	CKCYF473Z50
		C824 ELECTR. CAPACITOR	CEAS101M25
		C831 ELECTR. CAPACITOR	CEAS4R7M50
		C833 ELECTR. CAPACITOR	CEAS470M16
		C834 ELECTR. CAPACITOR	CEAS4R7M50
		C835, 836 ELECTR. CAPACITOR	CEAS101M10
		C851, 852 CERAMIC CAPACITOR	CKCYF473Z50
		C853, 854 ELECTR. CAPACITOR	CEAS100M50
		C855 ELECTR. CAPACITOR	CEAS220M25
		C856 CERAMIC CAPACITOR	CKCYF473Z50
		C861 CERAMIC CAPACITOR	CKCYF473Z50

1. RESISTORS :
   Indicated in Ω, 1/6W, ±5% tolerance unless otherwise noted k ; kΩ, M ; MΩ, (F) ; ±1%, (G) ; ±2%, (K) ; ±10%, (M) ; ±20% tolerance.

2. CAPACITORS :
   Indicated in capacity (μF) / voltage (V) unless otherwise noted p ; pF.
   Indication without voltage is 50V except electrolytic capacitor.

3. VOLTAGE CURRENT :
   ; DC voltage (V) at no input signal.
   ⬅mA ; DC current at no input signal.

4. OTHERS :
   ➡ ; Signal route.
   ⊘ ; Adjusting point.
   The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
   ※ marked capacitors and resistors have parts numbers.

   This is the basic schematic diagram, but the actual circuit may vary due to improvements in design.

Mark	No.	Description	Part No.
RESISTORS			
	R101-114	CARBONFILM RESISTOR	RD1/6PM□□□J
	R151, 152	CARBONFILM RESISTOR	RD1/6PM□□□J
	R201-210	CARBONFILM RESISTOR	RD1/6PM□□□J
	R239, 240	CARBONFILM RESISTOR	RD1/2LF□□□J
	R251-262	CARBONFILM RESISTOR	RD1/6PM□□□J
	R263, 264	CARBONFILM RESISTOR	RD1/2LF□□□J
	R265-270	CARBONFILM RESISTOR	RD1/6PM□□□J
	R281-284	CARBONFILM RESISTOR	RD1/6PM□□□J
	R301-306	CARBONFILM RESISTOR	RD1/6PM□□□J
	R331-338	CARBONFILM RESISTOR	RD1/6PM□□□J
	R351-359	CARBONFILM RESISTOR	RD1/6PM□□□J
	R401-412	CARBONFILM RESISTOR	RD1/6PM□□□J
	R451, 452	CARBONFILM RESISTOR	RD1/6PM□□□J
	R461-476	CARBONFILM RESISTOR	RD1/6PM□□□J
	R481, 482	CARBONFILM RESISTOR	RD1/6PM□□□J
	R484, 485	CARBONFILM RESISTOR	RD1/6PM□□□J
	R501-514	CARBONFILM RESISTOR	RD1/6PM□□□J
	R515	RESISTOR ARRAY (22K)	RA5T□□□J
	R516	LADDER RESISTOR(11K)	RCX1020
	R517-523	CARBONFILM RESISTOR	RD1/6PM□□□J
	R551, 552	CARBONFILM RESISTOR	RD1/6PM□□□J
	R553, 554	CARBONFILM RESISTOR	RD1/2LF□□□J
	R555, 556	CARBONFILM RESISTOR	RD1/6PM□□□J
	R560	CARBONFILM RESISTOR	RD1/2LF□□□J
	R571	CARBONFILM RESISTOR	RD1/6PM□□□J
	R573-578	CARBONFILM RESISTOR	RD1/6PM□□□J
	R591	CARBONFILM RESISTOR	RD1/6PM□□□J
	R593-595	CARBONFILM RESISTOR	RD1/6PM□□□J
	R596	CARBONFILM RESISTOR	RD1/2LF□□□J
	R597	CARBONFILM RESISTOR	RD1/6PM□□□J
	R601-614	CARBONFILM RESISTOR	RD1/6PM□□□J
	R616, 617	CARBONFILM RESISTOR	RD1/6PM□□□J
	R621-626	CARBONFILM RESISTOR	RD1/6PM□□□J
	R631-636	CARBONFILM RESISTOR	RD1/6PM□□□J
	R641-646	CARBONFILM RESISTOR	RD1/6PM□□□J
	R702	RESISTOR ARRAY (10K)	RA4T□□□J
	R703	CARBONFILM RESISTOR	RD1/6PM□□□J
	R704	RESISTOR ARRAY (10K)	RA4T□□□J
	R705-708	CARBONFILM RESISTOR	RD1/6PM□□□J
	R710-714	CARBONFILM RESISTOR	RD1/6PM□□□J
	R716-718	CARBONFILM RESISTOR	RD1/6PM□□□J
	R719	RESISTOR ARRAY(2.2K)	RA7T□□□J
	R720	RESISTOR ARRAY (2.2K)	RA5T□□□J
	R722-726	CARBONFILM RESISTOR	RD1/6PM□□□J
	R729	CARBONFILM RESISTOR	RD1/6PM□□□J
	R730	RESISTOR ARRAY 10K	RA3T□□□J
	R731-734	CARBONFILM RESISTOR	RD1/6PM□□□J
⚠	R742	FUSLIBLE RESISTOR	RFA1/4L□□□J
	R805-812	CARBONFILM RESISTOR	RD1/6PM□□□J
	R831-833	CARBONFILM RESISTOR	RD1/6PM□□□J
	R835, 836	CARBONFILM RESISTOR	RD1/6PM□□□J
	R838, 839	CARBONFILM RESISTOR	RD1/6PM□□□J
	R841	CARBONFILM RESISTOR	RD1/6PM□□□J
	R851-866	CARBONFILM RESISTOR	RD1/6PM□□□J
	R867	CARBONFILM RESISTOR	RD1/2LF□□□J
	R868-870	CARBONFILM RESISTOR	RD1/6PM□□□J
⚠	R871, 872	METAL OXIDE RESISTOR	RS1LMF□□□J
	VR101, 102	VR(22K)	RCP1046
	VR401-403	VR(22K)	RCP1046
	VR501, 502	VR(10K)	RCP1045
	VR571, 572	VR(47K)	RCP1047
	VR601, 602	VR(22K)	RCP1046
OTHERS			
	JA351, 352	JACK	RKB1020
	JA701, 702	JACK	RKN1004
	JA703	JACK	RKN1014
	X701	CERAMIC RESONATOR	VSS1014

CONNECTOR UNIT

Mark	No.	Description	Part No.
CAPACITORS			
	C1	CERAMIC CAPACITOR	CKCYF473Z50
RESISTORS			
	R4, 5	CARBONFILM RESISTOR	RD1/6PM□□□J

TRN 1 UNIT

There is no supply part in this unit.

TRN 2 UNIT

There is no supply part in this unit.

7. ADJUSTMENTS

7.1 MECHANISM RELATED ADJUSTMENT

1. Tape Speed Adjustment		
Mode	Adjustment Location	Specifications
PLAY	Capstan motor adjustment hole (Refer to Fig. 1.)	Adjust so that the playback frequency is 3000±5 Hz at the beginning of winding of test tape STD-301.
PLAY		Playback test tape STD-301 again and confirm that the above specifications are satisfied.

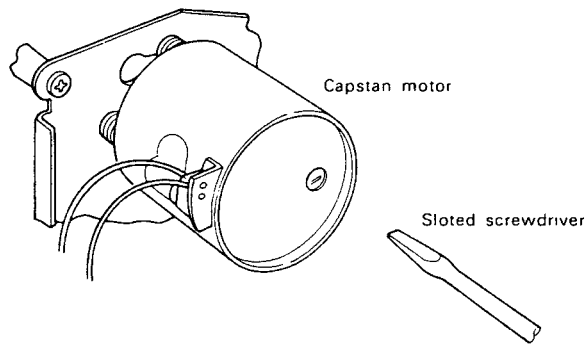


Fig. 1.

7.2 ELECTRICAL ADJUSTMENTS

Adjustment Conditions

1. The mechanical adjustments must be completed first.
2. The head must be cleaned and demagnetized.
3. Turn power on allow the deck to warm up for at least a few minutes before commencing any electrical adjustments.
4. The reference signal is 0 dBv=1 Vrms.
5. Connect a 50 kΩ (or between 47k to 52 kΩ) load resistance to the OUTPUT terminals.
6. Unless otherwise specified, the switches listed below are left in the positions indicated.
   DOLBY NR : OFF
   TAPE SELECTOR : NORM

Test Tapes

STD-331B : Playback adjustments (See Fig. 7-1)
STD-630 : NORMAL blank tape
STD-620 : CrO_2 blank tape
STD-610 : METAL blank tape

List of Adjustments

Playback sections

1. Head azimuth adjustment.
2. Playback level adjustment.

Recording sections

1. Bias oscillator adjustment.
2. Bias trap adjustment.
3. Recording bias adjustment.
4. Recording level adjustment.
5. Level meter adjustment and BLE adjustment.

NOTE: This unit has an automatic tape selection feature.

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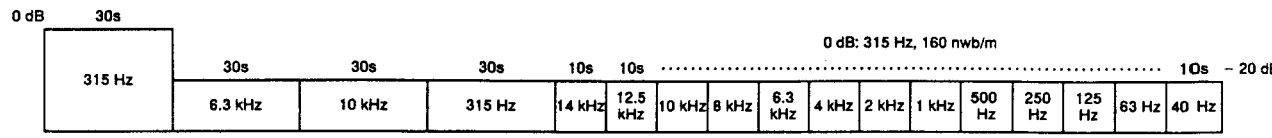


Fig. 7-1 Constants of the test tape STD-331B

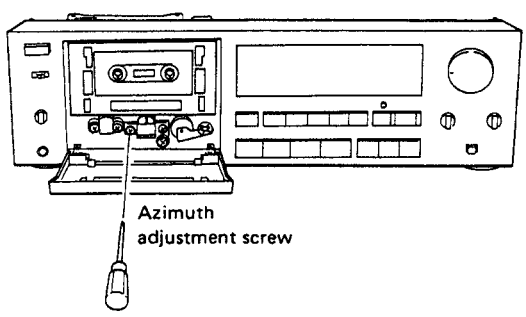


Fig. 7-2 Head azimuth adjustment

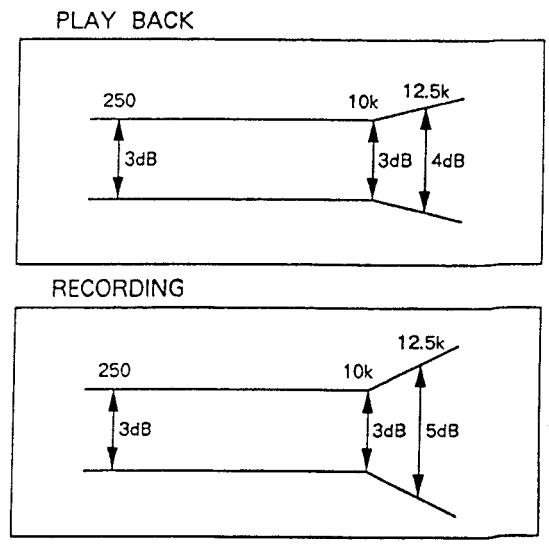


Fig. 7-3 Frequency response zone

PLAYBACK SECTION

1. Head Azimuth Adjustment

- Turn VR101, 102 to mechanical center positions.

No.	Mode	Input signal & test tape	Adjustment location	Measuring location	Adjustment value	Remarks
1.	PLAY	Play the 10 kHz/–20 dB section of STD–331B test tape.	Head azimuth adjustment screw. (See Fig. 7–2)	LINE OUT	Maximum playback signal level.	
2.	STOP	Lock the screw with screw lock after completing adjustment.				

2. Playback Level Adjustment

- This adjustment determines the DOLBY NR level, and must be performed with great care.

No.	Mode	Input signal & test tape	Adjustment location		Measuring location	Adjustment value	Remarks
1.	PLAY	Play the 315 Hz/0 dB section of the STD–331B test tape.	Deck	VR101 (Lch) VR102 (Rch)	TP. 3 (Lch) TP. 4 (Rch)	–10.7 dBv	This adjustment must be performed accurately for proper Dolby level setting.

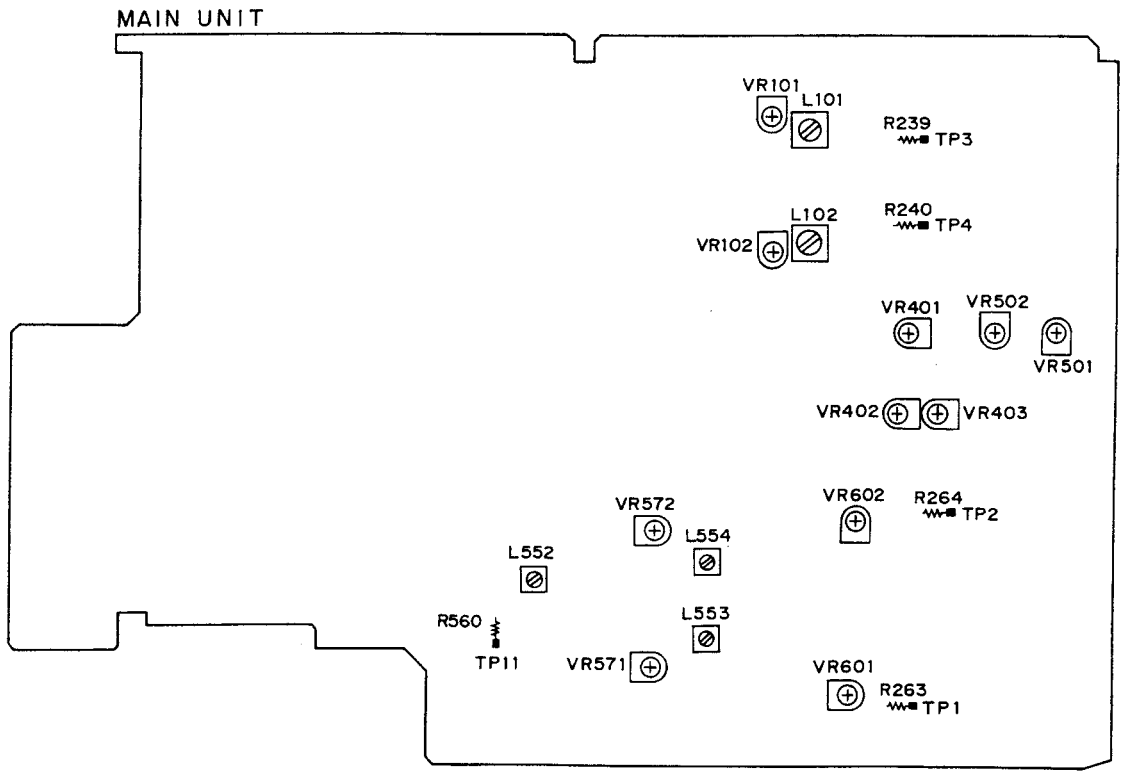


Fig. 7–4 Adjusting points

RECORDING SECTION

1. Bias Oscillator Adjustment

No.	Mode	Input signal & test tape	Adjustment location		Measuring location	Adjustment value	Remarks
1.	REC	Load the STD-610 test tape with no input signal.	Deck	L552	TP. 11	105 kHz ± 300 Hz	

2. Bias Trap Adjustment

No.	Mode	Input signal & test tape	Adjustment location		Measuring location	Adjustment value	Remarks
1.	REC	Load the STD-610 test tape with no input signal.	Deck	L101 (Lch) L102 (Rch)	LINE OUT	Minimum output	

3. Recording Bias Adjustment

No.	Mode	Input signal & test tape	Adjustment location		Measuring location	Adjustment value	Remarks
1.	REC/ PAUSE	Apply a 315 Hz/-20 dBv (-20VU meter reading) signal to the line input terminals and insert STD-630.			LINE OUT		
2.		Record and play back the 315 Hz signal and a 10 kHz signal at -20 dBv input level.	Deck	VR571 (L) VR572 (R)		Record and play back repeatedly, comparing the 315 Hz and 10 kHz playback levels, and adjust to 0 ± 0.5 dB.	
3.	Check distortion value after adjustment is completed and confirm that there is no underbias.						

4. Recording Level Adjustment

- Turn ON the DOLBY NR switch.

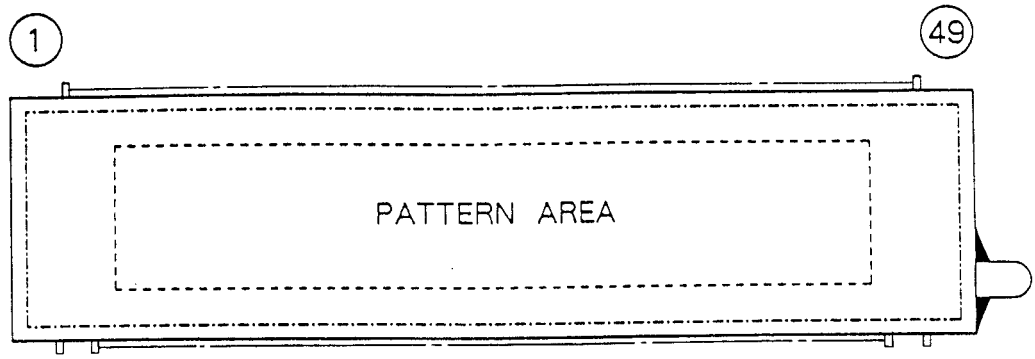
No.	Mode	Input signal & test tape	Adjustment location		Measuring location	Adjustment value	Remarks
1.	REC/ PAUSE	Apply the 315 Hz/0 dBv signal to the line input, and load STD-630 (NORM).	REC level control volume		TP. 1 (Lch) TP. 2 (Rch)	-11.2 dBv	
2.	REC → PLAY	Record and play back the 315 Hz/0 dBv signal.	Deck	VR601 (Lch) VR602 (Rch)	TP. 3 (Lch) TP. 4 (Rch)	Repeatedly record, playback and adjust so that the playback signal level becomes -11.2 dB.	Recording bias adjustment and recording level adjustment with STD-630 must be performed accurately as reference for BLE adjustment.
3.	REC → PLAY	Record the 315 Hz/0 dBv signal on STD-620 (CrO2), and play it back.	Check			-11.2 dBv ± 1.5 dB	
4.	REC → PLAY	Record the 315 Hz/0 dBv signal on STD-610 (METAL), and play it back.	Check			-11.2 dBv ± 1.5 dB	

5. Level Meter Adjustment and BLE Adjustment

- BLE adjustment should be performed after all other adjustments are completed.
- This adjustment should be performed in the test mode.
- Entering the test mode
  Press the MODE (COUNTER), RANGE and Display ON/OFF keys on the front panel simultaneously, with the power ON. The unit enters the test mode and the following occurs:
  1. When REC key is pressed, the unit enters the test mode 1. (FL indication "1")
     At this time, level meter adjustment is to be performed.
  2. When REW key is pressed, the unit enters the test mode 2. (FL indication "2")
     At this time, BLE adjustment (400 Hz) is to be performed.
  3. When STOP key is pressed, the unit enters the test mode 3. (FL indication "3")
     At this time, BLE adjustment (3 kHz) is to be performed.
  4. When PLAY key is pressed, the unit enters the test mode 4. (FL indication "4")
     At this time, BLE adjustment (12 kHz) is to be performed.

No.	Mode	Input signal & test tape	Adjustment location	Measuring location	Adjustment value	Remarks
1.	REC PAUSE	Input the 315 Hz/–10 dBv (316 mV) signal to the LINE INPUT terminal, set to the test mode, and then press the REC key.	REC LEVEL VR	LINE OUT	–10 dBv	Level meter adjustment
			VR501	Level meter Lch	Adjust so that 0 dB of the level meter flashes.	
			VR502	Level meter Rch	Adjust so that 0 dB of the level meter flashes.	
2.	—	REC LEVEL VR MIN or no signal input.	—	—	—	
3.		Press the REW key.	VR401	Level meter Rch	Adjust so that 0 dB of the level meter flashes.	400 Hz adjustment
4.		Press the STOP key.	VR402		Adjust so that 0 dB of the level meter flashes.	3 kHz adjustment
5.		Press the PLAY key.	VR403		Adjust so that 0 dB of the level meter flashes.	12 kHz adjustment
6.	When the RESET key is pressed again, the test mode is released.					

• FL INFORMATION

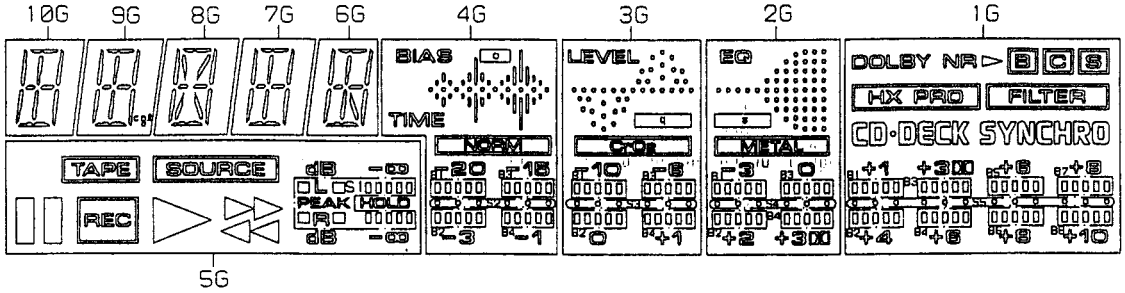


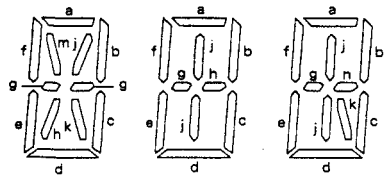
PIN CONNECTION

PIN NO.	49	48	47	46	45	44	43	42	41	40	39	38	37	36	35	34	33	32	31	30	29	28	27	26	25
CONNECTION	F1	F1	NP	1G	2G	3G	4G	5G	6G	7G	8G	9G	10G	P22	P21	P20	P19	P28	P27	P26	P25	P24	P23	P31	P30

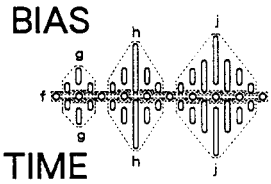
PIN NO.	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
CONNECTION	P29	NC	P18	P17	P16	P15	P14	P13	P1	P9	P2	P6	P8	P7	P5	P3	P10	P11	P4	P12	NP	NP	F2	F2

Note: 1) F1, F2 ····· Filament
2) NP····· No pin
3) NC ····· No connection
4) 1G to 10G ··· Grid

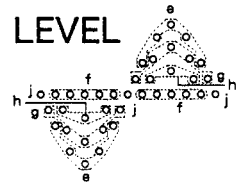




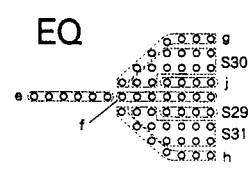
(8G) (7,9,10G) (6G)



(4G)



(3G)



(2G)

ANODE CONNECTION

	10G	9G	8G	7G	6G	5G	4G	3G	2G	1G
P1	a	a	a	a	a	▮▮	B1	B1	B1	B1
P2	b	b	b	b	b	REC	B2	B2	B2	B2
P3	c	c	c	c	c	▶	B3	B3	B3	B3
P4	d	d	d	d	d	◀◀	B4	B4	B4	B4
P5	e	e	e	e	e	▶▶	TIME	e	e	B5
P6	f	f	f	f	f	–	f	f	f	B6
P7	g	g	g	g	g	TAPE	g	g	g	B7
P8	h	h	h	h	h	SOURCE	h	h	h	B8
P9	j	j	j	j	j	HOLD	j	j	j	CD·DECK SYNCHRO
P10	–	–	k	–	k	dB –∞	–20 –15	–10 –6	–3 0	+1 +3 +6 +8
P11	–	o (col)	m	–	–	dB –∞	–3 –1	0 +1	+2 +3	+4 +6 +8 +10
P12	–	–	–	–	–	–	S2	S3	S4	S5
P13	–	–	–	–	–	S1	–	–	–	–
P14	–	–	–	–	–	–	BIAS	–	–	–
P15	–	–	–	–	–	–	o	–	–	–
P16	–	–	–	–	–	–	–	LEVEL	–	–
P17	–	–	–	–	–	–	–	q	–	–
P18	–	–	–	–	–	–	–	–	EQ	–
P19	–	–	–	–	–	–	–	–	s	–
P20	–	–	–	–	–	–	NORM	–	–	–
P21	–	–	–	–	–	–	–	CrO_2	–	–
P22	–	–	–	–	–	–	–	–	METAL	–
P23	–	–	–	–	–	–	–	–	–	DOLBY NR
P24	–	–	–	–	–	–	–	–	–	B
P25	–	–	–	–	–	–	–	–	–	C
P26	–	–	–	–	–	–	–	–	–	S
P27	–	–	–	–	–	–	–	–	–	HX PRO
P28	–	–	–	–	–	–	–	–	–	FILTER
P29	–	–	–	–	–	–	–	–	S29	–
P30	–	–	–	–	–	–	–	–	S30	–
P31	–	–	–	–	–	–	–	–	S31	–

8. FOR CT–676/HEM, HB, SD AND CT–676–S/HEWM TYPES

CONTRAST OF MISCELLANEOUS PARTS

NOTES:

- Parts without part number cannot be supplied.
- The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- Parts marked by "⊙" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.

The CT–676/HEM, HB, SD and CT–676–S/HEWM types are the same as the CT–S709/KU/CA type with the exception of the following sections.

Mark	Symbol & Description	Part No.					Remarks
		CT–S709/ KU/CA type	CT–676/ HEM type	CT–676/ HB type	CT–676/ SD type	CT–676–S/ HEWM type	
	SUBB unit	Non supply	Non supply	Non supply	Non supply	Non supply	
⚠	Strain relief	CM–22C	CM–22B	CM–22B	CM–22B	CM–22B	
⚠	AC Power cord	PDG1015	PDG1003	PDG1036	PDG1013	PDG1003	
⚠	FU701, FU702 Fuse (500mA)	REK–077	.....	.....	.....	.....	
⚠	FU703 Fuse (1.6A)	REK–074	.....	.....	.....	.....	
⚠	FU701, FU702 Fuse (400mA)	.....	REK–096	REK–096	REK–096	REK–096	
⚠	FU703 Fuse (1.25A)	.....	REK–101	REK–101	REK–101	REK–101	
⚠	Power transformer (AC120V)	RTT1159	.....	.....	.....	.....	
⚠	Power transformer (AC220–230/230–240V)	.....	RTT1160	RTT1160	.....	RTT1160	
⚠	Power transformer (AC110/120–127/220/240V)	.....	.....	.....	RTT1173	.....	
⚠	Voltage selector	.....	.....	.....	PSB1002	.....	
	FL filter	RAH1838	RAH1542	RAH1542	RAH1838	RAH1542	
	Power button	RAC1410	RAC1410	RAC1410	RAC1410	RAC1503	
	Function knob	RAC1411	RAC1411	RAC1411	RAC1411	RAC1502	
	Push knob	RAC1413	RAC1413	RAC1413	RAC1413	RAC1505	
	Knob (B)	RAC1414	RAC1414	RAC1414	RAC1414	RAC1492	
	VR knob	.....	.....	.....	.....	RAC1496	
	Mode knob	RAC1552	RAC1552	RAC1552	RAC1552	RAC1611	
	Slide SW knob	RAC1562	RAC1562	RAC1562	RAC1562	RAC1522	
	Door	RAH1846	RAH1846	RAH1846	RAH1846	RAH1847	
	Side rubber	REB1094	REB1094	REB1094	REB1094	REB1128	
	Panel stay	RNT1090	RNT1090	RNT1090	RNT1090	RNT1110	
	VR knob assembly (A)	RXA1281	RXA1281	RXA1281	RXA1281	.....	
	Bonnet	RXX1378	RXX1378	RXX1378	RXX1378	RXX1379	
	Front panel assembly	RXX1388	RXX1387	RXX1387	RXX1387	RXX1389	
	Packing case	RHG1282	RHG1281	RHG1281	RHG1281	RHG1283	
	Operating instructions (English)	RRB1094	.....	RRB1094	RRB1094	.....	
	Operating instructions (French, Italian, Dutch, Swedish, Spanish, Portuguese)	.....	RRD1110	.....	.....	.....	
	Operating instructions (English, German)	.....	RRE1045	.....	.....	RRE1045	

SUBB UNIT

The SUBB units (for CT–676/HEM, HB and CT–676–S/HEWM types) are the same as the SUBB unit (for CT–S709/KU/CA and SD types) with the exception of the following sections.

Mark	Symbol & Description	Part No.		Remarks
		CT–S709/ KU/CA, SD types	CT–676/HEM, HB and CT–676–S/ HEWM types	
	R2131, R2132 V2101 FL tube	RD1/6PM302J RAW1084	RD1/6PM273J RAW1075	

9. SPECIFICATIONS

System ..... 4 track, 2-channel stereo
Heads
Recording and playback head:
Combined Hard permalloy recording/Hard permalloy playback head × 1
Erasing head: Ferrite head × 1
Motor ..... DC servo capstan motor × 1
DC reel motor × 1
DC assist motor × 1
Wow and Flutter
No more than 0.027% (WRMS)
No more than ±0.065% (DIN)
Fast Winding Time (C-60 tape)
Approximately 90 seconds
Frequency Response (−20 dB recording, ±6 dB)
Metal tape ..... 15 to 21,000 Hz
Chrome tape ..... 15 to 20,000 Hz
Normal tape ..... 15 to 20,000 Hz
Signal-to-Noise Ratio (Dolby NR off)
More than 60 dB
Noise Reduction Effect
Dolby B-type NR ON ..... More than 10 dB (at 5 kHz)
Dolby C-type NR ON ..... More than 19 dB (at 5 kHz)
Harmonic Distortion ..... No more than 0.6% (0 dB)
Input (Sensitivity)
LINE (INPUT)
63 mV (Input impedance 54 kΩ)
Output (Reference level)
LINE (OUTPUT)
316 mV (Output impedance 3.2 kΩ)
Headphone
(Load impedance 8 Ω, PHONES LEVEL control max.)
1.3 mW

Subfunctions

- Super AUTO BLE system
- Dolby HX Pro Headroom Extension system
- Dolby B-type and C-type noise reduction systems
- MPX filter
- Level meter with 2 modes peak hold selection
  10 +1 segments
- Level meter range selection (wide/expanded)
- 4-digit electronic tape counter with mode selection
  Normal/Time
- Auto monitor selection (Tape/Source)
- Display off
- Music search (over ±15 selections)
- Automatic Tape Loose Canceller (ATLC)
- Tape return/Return play
- Auto space recording mute
- Auto tape selector
- Playback/recording timer start function
- CD•DECK SYNCHRO recording
- Headphones jack with level control
- Power eject (Open/Close)
- Repeat playback
- System remote control available

Miscellaneous

Power Requirements
U.S., Canadian model ..... AC 120 V, 60 Hz
U.K. model ..... AC 230−240 Volts~, 50/60 Hz
Multi-voltage model ..... AC 110/120−127/220/240 V (switchable), 50/60 Hz

Power Consumption

	U.S. Canadian	U.K.	Multi-voltage
CT-S709	21 W	–	–

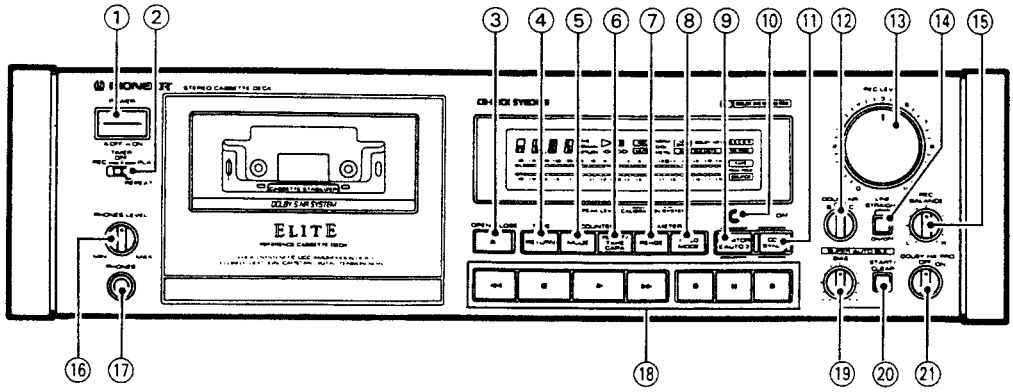
Dimensions
420(W) × 130.5(H) × 323(D) mm
16-9/16(W) × 5-1/8(H) × 12-11/16(D) in
Weight (without package)
5.8 kg (12 lb 13 oz)

Accessories

Operating instructions 1
Connection cord with pin plugs 2
CD•DECK SYNCHRO control cord 1
Remote control cord 1

NOTE:
Specifications and design subject to possible modifications without notice, due to improvements.

10. PANEL FACILITIES



① **Power switch (POWER ■ OFF/▬ ON)**

② **Timer mode/repeat play switch (TIMER REC/OFF/PLAY-REPEAT)**

③ **Open/close button (OPEN/CLOSE ⏏)**

Press this button to open or close the cassette door. Whenever inserting or removing a cassette tape, be sure that the power is turned ON.

NOTE:

If the cassette door is closed while the unit is turned OFF, and the power is then turned ON, the cassette door may open and close after pressing one of the operation buttons. This occurs when the microprocessor resets the door mechanism to its initial state and does not indicate any malfunctioning of the unit.

④ **Tape return button (TAPE RETURN)**

This button is used in the normal tape counter mode to fast forward or rewind the tape to a point near the counter reading "0000."

⑤ **Counter mode button (COUNTER MODE)**

Each time this button is pressed, one of the two mode (Normal tape counter/Time counter) is set in sequence.

⑥ **Counter reset button (COUNTER RESET)**

Reset the counter indication to "0000."

⑦ **Level meter range selector button (METER RANGE)**

Selects wide or expanded range for the level meter.

⑧ **Level meter hold mode button (METER HOLD MODE)**

Selects the display mode of the peak level.

When press this button so that the HOLD indicator lights up, the level meter holds the maximum level indications of the signal. To erase the maximum level indications, press this button again. When the HOLD indicator goes off, the level meter holds peak indications for about 1.2 second.

⑨ **Monitor selector button (MONITOR [AUTO])**

Used to monitor the source sound or just recorded sound during recording.

- When the unit is set to record or playback mode, the TAPE indicator light up and the monitor mode is automatically selected.

⑩ **Display off button (DISPLAY OFF)**

Press this button to turn off the function display.

⑪ **CD•DECK SYNCHRO recording button (CD SYNC)**

⑫ **DOLBY* NR switch**

3-position (B/OFF/C)

*

- *Dolby noise reduction and HX Pro headroom extension manufactured under license from Dolby Laboratories Licensing Corporation. HX Pro originated by Bang & Olufsen.*
- *"DOLBY", the double-D symbol ⧈ and "HX PRO" are trademarks of Dolby Laboratories Licensing Corporation.*

⑬ **Recording level control (REC LEVEL)**

⑭ **Recording balance control (REC BALANCE)**

⑮ **Headphones level control (PHONES LEVEL)**

⑯ **Headphones jack (PHONES)**

⑰ **Operation buttons**

- ◀◀: Rewind/music search
- ■ : Stop
- ▶ : Playback
- ▶▶: Fast forward/music search
- ● : Recording
- ▮▮ : Pause
- O : Recording mute

⑱ **SUPER AUTO BLE button (START/CLEAR)**

ATLC (Automatic Tape Loose Canceler)

With the tape slack prevention function, when the cassette door closes, the take-up reel automatically revolves to eliminate any tape slack.

SUPER AUTO BLE

With commercially available cassette tapes, sensitivity and frequency characteristics might differ slightly from one another, even though the same sound adjustment is set for them. To utilize tape characteristics to the maximum possible and realize an ideal recording which reproduces the source exactly, optimum recording level (sensitivity) and equalizer values must be set accordingly for each tape. In many conventional tape decks, standard values are fixed for standard tapes, thus nullifying the subtle differences between individual tapes. Perfect tuning by ear through use of fine adjustment controllers for bias and sensitivity is difficult and requires a lot of effort.

The AUTO BLE on this unit automatically adjusts bias, level and equalizer by using a microprocessor to set the optimum recording characteristics accordingly for each tape.

Contrast of Super AUTO BLE Tuning System

	CT-S709
BIAS tuning (Freq./Steps)	12 kHz 3-step
LEVEL tuning (Freq./Steps)	400 Hz 16-step
Mid EQ tuning (Freq./Steps)	3 kHz 16-step
Hi EQ tuning (Freq./Steps)	12 kHz 16-step